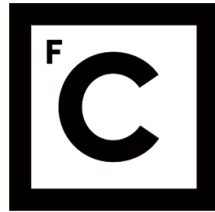


UNIVERSIDADE DE LISBOA
FACULDADE DE CIÊNCIAS



**Ciências
ULisboa**

**Transgressing boundaries?
Jesuits, astrology and culture in Portugal (1590-1759)**

“Documento Definitivo”

Doutoramento em História e Filosofia das Ciências

Luís Miguel Campos Ribeiro

Tese orientada por:

Professor Doutor Henrique José Sampaio Soares de Sousa Leitão

Professor Doutor Charles Stuart Freeman Burnett

Documento especialmente elaborado para a obtenção do grau de doutor

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Documento especialmente elaborado para a obtenção do grau de doutor

Financiado pela Fundação para a Ciência e a Tecnologia

To Helena

ACKNOWLEDGEMENTS

The first time I came across the astrological manuscripts of the Jesuit College of Santo Antão was around 2002-2003. By then Helena Avelar and I were surveying Portuguese astrological materials and we came across a copy of the lessons on Judiciary Astrology by Simon Fallon and the Treatise on Astrology by Luís Gonzaga. We found their contents very informative on the state of early modern Portuguese astrology. Although at the time we studied them briefly, other projects took precedence and they remained in our shelf for more than a decade. In 2016, after I finished by MA, Professor Henrique Leitão suggested a detailed study of these documents, I accepted the challenge, and the outcome was this doctoral thesis.

During the course of this research, I had the assistance of many people, without whom this work would have been less complete. To all I would like to extend my gratitude.

I want to thank above all to my two supervisors for their guidance: Henrique Leitão, who gave the impulse, and to whom I'm grateful his continuous encouragement; and to Professor Charles Burnett, who kindly shared his expertise and valuable advice throughout this research.

I would like to acknowledge also the helpful support of Lígia Martins and the staff at the Biblioteca Nacional de Portugal, as well as the head of the Ajuda Library, Cristina Pinto Basto and librarian Fátima Gomes. Also, a special thank for Professor Scot McKendrick for his assistance with the British Library materials.

I must also thank my colleagues at the University of Lisbon, Samuel Guesser, whose assistance with some source texts was most valuable, to Juan Acevedo, Luís Tirapicos, Bernardo Mota and Luís Carolino, to name only a few. My gratitude to Professor Haohao Zhu for providing some of the Chinese materials, to Patricia Konings for a copy of her unpublished research, to Alexandra Fialkovskaya and specially Jeffery Kotyk for their valuable assistance in decoding these materials. My special appreciation for the enlightening discussions with Dorian Greenbaum, David Juste, H Darrel Rutkin and Martin Gansten. Also, to Leonor, Emanuel, Qiue and Pietari, who were wonderful hosts during my research trips.

And finally, and always, to my eternal partner in life and in research, Helena!

ABSTRACT

This thesis addresses the use of astrology by the Society of Jesus in the early modern period; an almost unexplored topic in both the history of astrology and Jesuit historiography. At first, this connection is unexpected since astrology was not viewed favourably by the Church, and the Jesuits, one of the most powerful orders of this period, were strong defenders of the Catholic faith and orthodoxy. From this premise, many historians assumed that their religious fervour was matched by an equally strong rejection of astrology. This was apparently confirmed by some well-known anti-astrology publications authored by Jesuits. However, a detailed study of what Jesuits wrote and taught in the field of astrology reveals a much more positive, practical, and nuanced attitude towards the subject.

This study shows that, while some members of the Society actively opposed astrology based on religious grounds, others accepted it, albeit under the strictures established by Thomistic theology and the rules of the Index and the papal bulls. This acceptance was more evident among Jesuit scholars who debated astrology as a part of the established corpus of pre-modern scientific knowledge, placed within the fields of mathematics and astronomy. Although this attitude towards astrology is already incipient in Jesuit printed works, it is in their corpus of scientific manuscripts that these views come into full expression.

At the core of this study are several manuscripts containing lessons on astrology taught in one of the main Jesuit educational institutions in Portugal, the ‘class on the sphere’ of the college of Santo Antão. To these were added other testimonies of Jesuit authorship from Europe, the Far East, and the New World. This corpus of documents has allowed an in-depth study of their writings defending astrology, their religious and scientifically tailored astrological curricula, and the existing testimonies of Jesuit astrological practice. The result is a novel view on the relationship of Jesuits with astrology, revealing them as competent teachers and prudent practitioners.

KEYWORDS:

Astrology, Jesuit science, astrological curricula, early modern culture.

RESUMO

Esta tese estuda a prática e o ensino da astrologia pela Companhia de Jesus nos séculos XVI, XVII e princípio do XVIII. Numa primeira análise esta ligação parece inesperada pois a astrologia não era vista favoravelmente pela Igreja e os Jesuítas, uma das ordens mais poderosas da contrarreforma, e firmes defensores da ortodoxia. Com base nesta premissa, muitos historiadores assumiram que o fervor religioso dos jesuítas seria acompanhado por uma igualmente intensa rejeição da astrologia. Esta noção era aparentemente consolidada por publicações anti-astrológicas de autores da Companhia. No entanto, um estudo detalhado de textos e ensinamentos jesuítas sobre a astrologia revelam uma atitude de maior aceitação deste assunto.

Este estudo mostra que embora alguns membros da Companhia tivessem uma postura anti-astrológica de base religiosa, outros aceitavam-na como um conhecimento válido, compatível com os limites estabelecidos pela teologia tomista e pelas regras do Index e das bulas papais (1586 e 1631). Esta aceitação da astrologia é mais evidente entre os astrónomos jesuítas, que a consideravam parte do corpus científico pré-moderno, no contexto das ciências matemáticas. Embora presente de forma mais discreta nos textos impressos, é no corpus de manuscritos científicos jesuítas que esta postura se torna plenamente evidente.

No centro do presente estudo estão as sebtas de astrologia lecionadas na Aula da Esfera do Colégio de Santo Antão, uma das principais instituições Jesuítas de ensino em Portugal. Aqui a astrologia foi ensinada em conjunto com outras ciências matemáticas, como a astronomia e a navegação. Paralelamente a estas lições foram também analisados outros documentos astrológicos jesuítas originários da Europa, do Extremo Oriente e do Novo Mundo. Este grupo documental permitiu uma visão detalhada das relações dos jesuítas com a astrologia, incluindo textos defendendo a sua prática, um currículo jesuíta de astrologia ajustado à prática religiosa, e vários exemplos de julgamentos astrológicos feitos por membros da Companhia.

A primeira parte da tese oferece uma visão da astrologia neste período: a sua prática, as mudanças e divulgação impulsionadas pelo advento da imprensa, os grandes debates anti-astrológicos, e a crescente marginalização no final do século XVII. Na segunda parte são abordadas as opiniões dos Jesuítas em relação ao tema: os textos anti-astrológicos, os argumentos teológicos e o seu posicionamento no discurso científico pela voz dos matemáticos e astrónomos da Ordem. A terceira parte aborda as lições de astrologia da Aula da Esfera do

Colégio de Santo Antônio, demonstrando que estas faziam claramente parte do currículo público do colégio. Em seguida é apresentado um estudo detalhado do programa das aulas de astrologia, revelando as suas especificidades científicas e adequação religiosa. A quarta e última parte apresenta alguns exemplos de juízos astrológicos por autores jesuítas demonstrando que o seu uso da astrologia não se restringia à reflexão teórica e ao ensino, estendendo-se também à prática.

Desta análise resulta uma nova visão da relação dos jesuítas com a astrologia, colocando esta prática como parte integrante do corpus de conhecimentos estudados pela ciência jesuíta.

PALAVRAS-CHAVE:

Astrologia, Ciência Jesuíta, Currículo astrológico, Cultura pré-moderna.

TRANSGRESSING BOUNDARIES?

Jesuits, astrology and culture in
Portugal (1590-1759)

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ABBREVIATIONS & SYMBOLS

Libraries and archives

ANTT	–	Arquivo Nacional da Torre do Tombo
BA	–	Biblioteca da Ajuda
BACL	–	Biblioteca da Academia das Ciências de Lisboa
BAM	–	Biblioteca Ambrosiana
BAV	–	Biblioteca Apostolica Vaticana
BB	–	Biblioteca da Brotéria
BGUC	–	Biblioteca Geral da Universidade de Coimbra
BL	–	British Library
BNCR	–	Biblioteca Nazionale Centrale di Roma
BNE	–	Biblioteca Nacional de España
BnF	–	Bibliothèque nationale de France
BNP	–	Biblioteca Nacional de Portugal
BPE	–	Biblioteca Pública de Évora
BPMP	–	Biblioteca Pública Municipal do Porto
CDFO	–	Centro de Documentação da Fundação Oriente

Astrological symbols

♄	Saturn	♈	Aries	♌	Conjunction
♃	Jupiter	♉	Taurus	♍	Sextile
♂	Mars	♊	Gemini	♋	Square
☼	Sun	♋	Cancer	♌	Trine
♀	Venus	♊	Leo	♍	Opposition
☿	Mercury	♍	Virgo		
☾	Moon	♎	Libra		
		♏	Scorpio		
♊	North Node	♐	Sagittarius		
♋	South Node	♑	Capricorn		
⊗	Lot of Fortune	♒	Aquarius		
		♓	Pisces		

Transcription and citation notes

The transcriptions follow as much as possible the original texts, printed or manuscript. Any clarifications to the text are made in square brackets.

The original spelling of the Portuguese and Spanish text is kept, and necessary clarifications or additions are made in square brackets; abbreviations are expanded for a better understanding of the text. Some of the text had to be slightly edited when translated to English to facilitate the understanding.

When the text is taken from a single manuscript, the specific folio is cited. Since most of the astrological lessons of Santo Antão, were edited from all their known copies, they will be cited according to treatise (tr.), chapter (ch.) or any other specific division of the text, such as ‘proem’ or ‘introduction’. The corresponding folios for each section in each of the surveyed manuscripts are listed in Appendix III.A.

Both the term ‘judicial astrology’ and ‘judiciary astrology’ are used. The modern form ‘judicial’ is mainly used throughout the text, but in discussing the sources the word ‘judiciary’ is used more often to maintain the original tone. Note that in the Portuguese and Spanish sources it is common for ‘Judiciary’ to be used as a noun to signify judicial astrology.

In regard to astrological terminology, the term ‘figure’ and ‘chart’ are used to designate the astrological chart instead of ‘horoscope’ because in the majority of pre-modern texts, ‘horoscope’ signifies only the ascending degree and not the chart itself. Other terms will also be used for specific types of charts, such as ‘nativity’, ‘revolution’, ‘ingress’, or ‘interrogation’. To conform to current common English convention, the word ‘lot’ will be primarily used instead of ‘part’ to translate ‘pars’, ‘parte’ or ‘sorte’.

INTRODUCTION

In the 1970s Portuguese historians began to pay attention to scientific materials that had survived from the Jesuit college of Santo Antão in Lisbon. This institution, through its so-called *Aula da Esfera* ('the class on the sphere'), was the main centre for mathematical learning in the kingdom from 1590 until the expulsion of the Jesuits in 1759. The initial focus of these researchers was the history of navigation, which had been taught at the college since 1590.¹ But an odd thing emerged from these studies. Among the various manuscripts with lessons on mathematical subjects, such as arithmetic, geometry, and astronomy, were a considerable number on astrology; perhaps more than these researchers would have liked to find. Stranger still, many of them bore the title 'Judicial Astrology' – the most rejected and forbidden of such practices according to the dictates of the Church, and the most damnable remnant of old superstitions according to the still largely positivist historiography of the time. In view of these testimonies, the same Jesuit teachers who had introduced into Portugal the revered teachings of the new science of the seventeenth century, had also taught this outcast pseudo-science of the past. How could members of one of the chief religious orders of the early modern period have engaged in such teaching? How could enlightened men such as these, dedicated to the dissemination of scientific knowledge, allow themselves to be besmirched by such vile superstitions? No answers were provided and the subject became muted in academic writings, dismissed as an odd practice, possibly the awkward request of some important patron that could not be denied, perhaps something done in secrecy or in private.

Thus, for several decades the subject remained untouched. Only in the first years of the twenty-first century when new research projects reviewed these materials and created new catalogues, did the strange astrological manuscripts come to light again. Even so, beyond occasional mentions, only a single short paper addressed this matter directly, uncovering some of the complex history behind these astrology teachings and taking a brief look at their content. To this day it remained as the only study on the astrological teachings in Santo Antão.²

¹ Previously, only Jesuit historians had called attention to this class, but the first modern study was made by Luís Albuquerque, 'A "Aula de Esfera" do Colégio de Santo Antão no Século XVII', in *Agrupamento de Estudos de Cartografia Antiga*, 70 (Junta de Estudos do Ultramar, 1972), 1–51; and also *Duas obras inéditas do Padre Francisco da Costa*, 2nd ed. (Macau: Fundação Oriente Museu e Centro de Estudos Marítimos, 1989).

² Henrique Leitão, 'Entering Dangerous Ground: Jesuits Teaching Astrology and Chiromancy in Lisbon', in *The Jesuits II: Cultures, Sciences, and the Arts, 1540-1773*, ed. John W. O'Malley (Toronto: University of Toronto Press, 2006), 371–89.

The present research fills this gap with an in-depth study of the astrology lessons, their presence in a religious scientific institution, and the larger implications of their existence within Jesuit culture. The lessons raise several questions, of which three are paramount:

First, how can astrology, particularly the supposedly forbidden ‘judicial astrology’, have a place in a Jesuit institution? A quick glance at the historiography of religion and astrology shows it to be forbidden by papal bulls, highly regulated, and censured.

Second, why was astrology included in the curriculum of Santo Antônio, when no other Jesuit institution appears to have taught it? Given the forbidden and highly precarious status of astrology with the Catholic Church, it seems very odd that members of the Society would have taught it.

Third, what exactly was the relationship of Jesuits with astrology? Considering their role and power in the early modern Catholic Church and their engagement in the counter-reformation, it would be assumed to be the same as that of the Church: one of restriction and rejection of judicial astrology. So, why were members of the order teaching it?

Many other questions could be asked, but current historiography of the Society of Jesus has few answers for them. Aside from the above-mentioned brief paper on the astrological teachings of Santo Antônio, no academic study has so far addressed the relationship of the Jesuits with astrology. This is strange, considering that astrology was a pervasive element in early modern culture. Jesuits would have had to deal with it continuously and accommodate it in some manner in their own specific culture. It must be understood whether or not the teaching, or even the practice of astrology by a member of the Society would have been considered a transgression. And if so, to what extent, because, even the Church deemed licit some parts of astrology, the so-called ‘natural astrology’.

This research offers an overall study on the role of astrology in the Society of Jesus, having at its core the case study of the *Aula da Esfera* of Santo Antônio, where astrology can be more clearly and continuously associated with the Jesuits than anywhere else it seems. The topic is examined in four parts:

Part One offers a general introduction to the complex role of astrology in early modern culture, setting the stage for its discussion in a Jesuit context. It addresses its history, development, its criticism, and importantly, its relationship with the Church and with science, as well as its eventual marginalization;

Part Two explores the Society's relationship with astrology, including both its anti-astrological writings, as well as its theological and philosophical stances. Then, by looking at its teaching system and the mathematical and astronomical books of the Order's foremost academics, it assesses the place of astrology in Jesuit scientific discourse. It shows how astrology was much more a part of Jesuit discourse and culture than previously assumed, playing an important part in their scientific works, their missions, and worldwide educational enterprise;

Part Three addresses the case study of Santo Antão. It is divided into two parts. The first studies the college's role in early modern Portuguese education. It offers new information on the college's teachers and manuscripts, showing the many instances where astrology was seamlessly integrated into the college's public curriculum as one of the various elements of the technical training it provided. The second part offers a detailed study of the astrological syllabus, its structure, sources, and peculiarities. It presents a unique defence of astrology by Jesuits and explores the idea of a Jesuit astrology and astrological culture;

Part Four complements the study with examples of astrological practice by Jesuits. It shows that, in parallel with the teaching, there were also practical applications exhibited in a diverse range of astrological judgements not unlike those made by many learned men of this period.

Overall, this research offers a new perspective into early modern Jesuit culture, science and education by highlighting an element that has been long overlooked: astrology.



PART I. ASTROLOGY IN THE EARLY MODERN ERA

The history of astrology in the early modern period and its complexities is a vast subject of which we still do not have a complete view. The practice and the impact of astrology extended through all levels of society. It was embedded in culture, art, politics, science, philosophy and even religion. To fully understand its role in the early modern world, and for that matter in any period, it must be looked at from many points of view and understood not only by its cultural effects, but also by its own structure and definition. The early modern period, here considered from the second half of the fifteenth century to the first decades of the eighteenth century, is a particularly interesting moment in the history of astrology. On the one hand it corresponds to one of the most intense periods in astrological practice, kindled by the profound cultural transformations brought by the Renaissance, the age of discoveries, and the printing press, as well as the subsequent changes to cosmology and science brought by the seventeenth century. On the other hand, the early modern period is also the prelude to one of its most impacting moments, the banishment of astrology from the realm of accepted sciences. There has been a great amount of work developed on the role of astrology in this period, covering its political, social and intellectual ramifications.³ Yet, given the pervasive presence of astrology in this period's culture, there are still many aspects waiting to be fully explored and a comprehensive approach to the topic, capable of integrating its many components, is still needed. The Jesuits' relationship with astrology, addressed in this research, is one of such underexplored facets. However, in order to fully understand the Jesuit views on astrology and the nature of their

³ The academic production on early modern astrology is too extensive to quote here. Among many worthy works, the following are some notable publications in this area that provide indispensable studies on the topic: Lynn Thorndike, *History of Magic and Experimental Science*, 8 vols (New York: Columbia University Press, 1923); John David North, *Horoscopes and History*, Warburg Institute Surveys and Texts 13 (London: Warburg Institute, 1986); Paola Zambelli, ed., *'Astrologi Hallucinati': Stars and the End of the World in Luther's Time* (Berlin - New York: Walter de Gruyter, 1986); Patrick Curry, *Prophecy and Power: Astrology in Early Modern England* (Princeton, N.J.: Princeton University Press, 1989); Hervé Drévilion, *Lire et Écrire l'avenir: Astrologie Dans La France Du Grand Siècle (1610-1715)*, Epoques (Seyssel: Champ Vallon, 1996); Steven Vanden Broecke, *The Limits of Influence: Pico, Louvain, and the Crisis of Renaissance Astrology* (Leiden: Brill, 2003); Günther Oestmann, H Darrel Rutkin, and Kocku von Stuckrad, eds., *Horoscopes and Public Spheres: Essays on the History of Astrology*, Religion and Society 42 (Berlin: De Gruyter, 2005); Germana Ernst and Guido M. Giglioni, eds., *Astrologia e Divinazione Nel Rinascimento* (Roma: Carocci, 2012); Monica Azzolini, *The Duke and the Stars: Astrology and Politics in Renaissance Milan* (Boston: Harvard University Press, 2013); Brendan Dooley, ed., *A Companion to Astrology in the Renaissance*, Brill's Companions to the Christian Tradition 49 (Leiden: Brill, 2014); Wiebke Deimann and David Juste, eds., *Astrologers and Their Clients in Medieval and Early Modern Europe* (Köln Weimar Wien: Böhlau, 2015); Robin Bruce Barnes, *Astrology and Reformation* (Oxford: Oxford University Press, 2016); H Darrel Rutkin, *Sapientia Astrologica: Astrology, Magic and Natural Knowledge, ca. 1250-1800: I. Medieval Structures (1250-1500): Conceptual, Institutional, Socio-Political, Theologico-Religious and Cultural*, Archimedes (Cham: Springer International Publishing, 2019). Other relevant works will be cited in the course of this dissertation.

involvement with its conceptualizations, its teaching and its practice, the discussion must first be set within its proper context. Therefore, an overview of astrology in the early modern period, even if concise, must first be presented. Only then the circumstances surrounding the Jesuit discussions on astrology's lawfulness or illicitness, its capabilities and limitations, as well as the testimonies of Jesuit teaching and practice of astrology, can be understood. The next chapters create the proper setting for the discussion by introducing the main topics surrounding the practice of astrology in the Early Modern period, in particular during the sixteenth and seventeenth centuries. First, its practice, teaching, and the main debates arising in this period, as well as some of its most influential authors and texts. There follows an extensive discussion on the interactions of the Church with astrology and how this shaped its practice during the sixteenth and seventeenth centuries. Finally, it addresses the identity of astrology as a science in this period, and as a last point, discusses in broad terms its process of marginalization from the field of scientifically accepted knowledge by the first decades of the eighteenth century. Only then the participation of the Jesuits in these debates can be properly understood.

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Chapter 1. Early Modern Astrology: an overview

It is commonly believed that it was during this period, under the weight of the new cosmological views, such as heliocentrism, that astrology met its demise. In this perspective, the new knowledge of the universe and of the mechanics and nature of the heavens, would have forced astrology to change its fundamental premisses, ultimately leading to its irreversible collapse. Nothing could be further from the truth.⁴ Astrology did change during this period, and by the beginning of the eighteenth century had all but disappeared from the academic milieu. Yet, the new views of the heavens set in motion by Copernicus's models and Galileo's discoveries, appear to have had only a marginal role in the process. The change was in progress long before the new celestial discoveries came to light. As detailed below, several other factors acted as catalysts. One was the advent of printing, which promoted the dissemination of astrology on an unprecedented scale. This incremented its study through the words of many new titles and authors who progressively replaced the traditional medieval sources. However, a side effect of massive printing was the vulgarization of astrology in the form of popular almanacs. As will be shown, in the long run this simplified not only the astrological doctrine, but also its prognostications. This led to several controversies that tarnished the image of astrology in the public eyes and fuelled the ammunition of its critics. Indeed, another important factor to the changes in Early Modern astrology were the numerous attacks and criticisms that it endured throughout the end of the fifteenth until the end of the seventeenth century. They questioned astrology's validity both as a form of knowledge and as a licit practice. At the forefront of these attacks was the famous *Disputationes adversus astrologiam divinatricem* by Pico della Mirandola (1463-1494), which struck the very functioning core of astrology and questioned its capability to predict future events.⁵ Another frontal attack, perhaps the most damaging, was headed by the Catholic Church, which throughout the second half of the sixteenth and the early decades of the seventeenth century, placed heavy restrictions on astrological practice. These did not stop astrology, as it continued to be practiced for at least two more centuries, but they made it convoluted, coercing it into an uncomfortable position between the licit and the illicit, as discussed in the next chapter. Despite all these changes and challenges, throughout the sixteenth and seventeenth century astrology would still be part of the syllabi of many European

⁴ See an overview on this matter in Rienk Vermij and Hiro Hirai, 'The Marginalization of Astrology: Introduction', *Early Science and Medicine* 22, no. 5–6 (2017): 407.

⁵ Giovanni Francesco Pico della Mirandola, *Disputationes adversus astrologiam divinatricem* (Bologna: B. Hector, 1496).

universities and it was studied and practiced by learned men, many of them religious.⁶ As the number of educated people increased, astrology became available not only to the higher classes, but also to more humble strata of society.

The practice of astrology

Astrology can be simply defined as the knowledge that interprets the movements of the heavens correlating them with events on Earth. This knowledge was rooted in a long line of authors and works from the Classical to the Early Modern period, and thus consolidated by centuries of practice and tradition. But what did its practice entail? First, it required from astrologers a considerable amount of mathematical and astronomical knowledge in order to calculate the astrological chart and to compute the movements of the planets. By the Early Modern period this became an easier task, since the advent of printing increased the availability of tables and ephemerides. Yet, it still required a medium to higher level of astronomical education to produce precise computations and to handle the more advanced facets of astrological practice. Instruments were also key components in this process, as astrolabes and celestial globes were also built with the purpose of assisting astrological computations.⁷ Before any judgement, the astrologer had to cast an astrological chart. This could be calculated for a full or new Moon, an eclipse, or a birth, depending on the purpose of the judgement. To accomplish this the astrologer needed to know, with the greatest accuracy possible, the date, time and place of the event; thus, the importance of mathematics, astronomy and even geography in the astrologer's education. In most pre-modern astrological literature, the astrological chart is designated as the 'figure' or 'thema'. The term 'horoscope' (commonly used today) designated the degree of the zodiac ascending at the moment for which the chart is cast, also known as the 'ascendant'; it was seldom used to designate the chart itself. Most often, the charts were named after what they represented, such as 'nativity' for a birth, 'revolution' for any seasonal ingress of the Sun, 'lunation' for a chart of a given phase of the Moon (often the new or full Moon, but sometimes also the quarters), 'eclipse' for a solar or lunar occultation, and 'interrogation' for a question. Only after the correct calculation of the astrological figure, could the judgement be made. The

⁶ On astrology and the university see John David North, 'The Quadrivium', in *A History of the University in Europe*, ed. Hilde de Ridder-Symoens, vol. 1, *A History of the University in Europe* (Cambridge: Cambridge University Press, 1991), 337–59; Vanden Broecke, *The Limits of Influence*, 12–17, 40–46; Dag Nikolaus Hasse, *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance* (Cambridge, Massachusetts; London, England: Harvard University Press, 2016), 23–26; Rutkin, *Sapientia Astrologica*, 385–421.

⁷ For a recent studies on instruments and astrology see: Richard Dunn, Silke Ackermann, and Giorgio Strano, eds., *Heaven and Earth United: Instruments in Astrological Contexts*, *Scientific Instruments and Collections*, volume 6 (Leiden ; Boston, MA: Brill, 2018).

astrological judgements fell into four main types, also called branches, divisions, or applications, defined by the subject under study:⁸

Revolutions of the years of the world, commonly just called ‘revolutions’, address the broader, collective issues, including weather prediction, the social and political conditions of the year; to accomplish this the astrologers used lunations, eclipses and of the ingresses of the Sun at the beginning of each season.

Nativities, consisting in the interpretation of the birth chart in order to assess the individual’s nature and potentials, and the time when they would manifest.

Interrogations, sometimes also called ‘Horary’, or ‘Questions’ entailing the answering of specific questions by calculating the chart of the moment a question was asked to the astrologer.

Elections, or ‘Choices’ which involved the selection of the appropriate time for an action by studying the celestial configurations.

The larger astrological treatises dealt with all these divisions, while others specialized in one or two of them. Therefore, an accomplished astrologer had to master not only mathematics and astronomy, but also the vast array of principles and methodologies that constituted astrological doctrine. In fact, for the most part of their existence, astronomy and astrology were just two facets of a single ‘science of the stars’ which studied the movements of the heavens and its effects on Earth, as for example Ptolemy lays out in the introduction of the *Tetrabiblos*.⁹ Until late in the Early Modern period, the two designations were interchangeable. The observation and calculation of movements (what today is known as astronomy) was the theoretical branch of this knowledge, while the interpretation (today’s astrology) was its practical application. Because of this direct connection with astronomy, many of the astronomers and mathematicians were knowledgeable in astrology, and most of them were also active practitioners of astrology. Among these are some of the most famous astronomers of this era, such as Galileo Galilei, Tycho Brahe, and Johannes Kepler.¹⁰ One of the most important applications of astrology was

⁸ The divisions presented here are those prevalent in the European medieval and Early Modern periods. See, for example Rutkin, *Sapientia Astrologica*, xxx.

⁹ Ptolemy, *Tetrabiblos*, I.1. Unless stated otherwise the translation used in this work is Ptolemy, *Tetrabiblos*, trans. F. E. Robbins (Cambridge, Mass.; London: Harvard University Press, 1940).

¹⁰ See, for example, Nicholas Campion and Nicholas Kollerstrom, eds., *Galileo’s Astrology*, Culture and Cosmos, v. 7, no. 1 (Bristol: Culture and Cosmos in association with the Sophia Centre for the Study of Cultural Astronomy and Astrology, 2003); Noel M. Swerdlow, ‘Galileo’s Horoscopes’, *Journal for the History of Astronomy*, no. 35 (2004): 135–41; H Darrel Rutkin, ‘Galileo Astrologer: Astrology and Mathematical Practice in the Late-Sixteenth and Early-Seventeenth Centuries’, *Galilaeana*, no. 2 (2005): 107–43; Dorian Gieseler Greenbaum and Dorian Gieseler Greenbaum, eds., *Kepler’s Astrology*, vol. 1–2, Culture and Cosmos 14 (Bristol: Culture and Cosmos, 2011).

in medical practice, and for this purpose there existed a vast array of astrological methods adapted for the specific judgement of diseases, as well as for the election of the best kind of treatment, or to establish the ideal moment for medical interventions. Hence, it was not uncommon for a physician to be also an astrologer, and in many universities the teaching of astrology was part of the medical course.¹¹ One of the best-known examples of such a practitioner is Girolamo Cardano (1501–1576). He mastered several fields of knowledge directly linked to astrology: he was an accomplished physician, a highly praised mathematician, and perhaps one of the most influential astrologers of the sixteenth century.¹² Another common use of astrology was the forecast of the year, which comprised not just weather prediction and crop yield, but also the state of political affairs, topics greatly popularised by the almanacs during this period. An additional application of astrology was that of natural magic, which gained a new impulse with the rise of Neoplatonism and Hermeticism. In it, astrological configurations were used to establish the ideal moments for magic rituals or for the production of talismans. Many authors place these practices as a specialisation of the elections branch of astrology. Examples of this are present in the works of Marsilio Ficino (1433–1499), Cornelius Agrippa (1486–1535), and Tommaso Campanella (1568–1639).¹³

A changing knowledge

The astrological doctrine was always supported by a long lineage of authors and practitioners. Beginning in the Classical period, this work was carried on and commented throughout Late Antiquity and transmitted to Europe by a long line of medieval authors, mainly writing in Arabic and later in Latin.¹⁴ Thus, any new texts or new methodologies in astrology always drew upon the authority of the preceding writers and quoted them. This form of transmission was present in astrology's history until its marginalization at the end of the seventeenth century.

¹¹ A discussion of the use of astrology in medicine, see Anna Akasoy, Charles Burnett, and Ronit Yoeli-Tlalim, eds., *Astro-Medicine: Astrology and Medicine, East and West*, Micrologus' Library 25 (Firenze: SISMELE Edizioni del Galluzzo, 2008); Hiro Hirai, 'The New Astral Medicine', in *A Companion to Astrology in the Renaissance*, ed. Brendan Maurice Dooley, Brill's Companions to the Christian Tradition 49 (Leiden: Brill, 2014), 267–86. On the teaching of astrology in medicine course, see for example Vanden Broecke, *The Limits of Influence*, 43–46.

¹² For an extensive study on Cardano see: Anthony Grafton, *Cardano's Cosmos: The Worlds and Works of a Renaissance Astrologer* (Cambridge, Mass.; London: Harvard University Press, 2001).

¹³ On magic and astrology in the Renaissance and Early Modern period see for example, Daniel Pickering Walker, *Spiritual and Demonic Magic: From Ficino to Campanella* (University Park, PA: Penn State Press, 2000); Paola Zambelli, *White Magic, Black Magic in the European Renaissance*, vol. 125, Studies in Medieval and Reformation Traditions (Leiden - Boston: Brill, 2007); Peter J. Forshaw, 'Astrology, Ritual and Revolution in the Works of Tommaso Campanella', *The Uses of the Future in Early Modern Europe*, 2009, 181; H Darrel Rutkin, 'The Physics and Metaphysics of Talismans (Imagines Astronomicæ) in Marsilio Ficino's *De vita libri tres*: A Case Study in (Neo)Platonism, Aristotelianism and the Esoteric Tradition', in *Platonismus und Esoterik in byzantinischem Mittelalter und italienischer Renaissance* (Heidelberg: Universitätsverlag Winter, 2013), 149–73.

¹⁴ Also, although to a lesser extent, in Hebrew such as Abraham Ibn Ezra (c.1089–c.1164).

However, sometime around the second half of the fifteenth century astrology began to experience a major process of change, one that would lead to the rise of a strong revisionist attitude. Gradually, a different astrology emerged, much changed by the disparate opinions of numerous new authors, a patchwork version of what was once a consolidated doctrine. The details of this internal change of astrological doctrine are still to be examined, but its origin lies in the overzealous revision of the traditional sources that took place in this period.¹⁵ To understand this process, it must be taken into consideration that since late antiquity Ptolemaic doctrine stood as the main source of astrological practice. Ptolemy's astrological book, the *Tetrabiblos* (or *Quadripartitum* in the Latin traditions) became as much the backbone of astrological doctrine, as its astronomical counterpart, the *Almagest*, was for astronomical knowledge. However, some of the technical aspects of Ptolemy's astrological doctrine had been, since very early in its history, replaced or at least diminished, by others originating from alternative sources and traditions, some contemporary to Ptolemy. The foremost example of such alternatives is the highly influential *Carmen Astrologicum* by Dorotheus of Sidon, which clarifies and addresses many methodologies that Ptolemy omits.¹⁶ In fact, in the *Tetrabiblos* Ptolemy focuses more on explaining the natural rationale behind astrology than in the methodologies of its practical application. The latter are found in the works by Dorotheus and others, which discuss the methods of astrological interpretation in greater detail and provide examples which are lacking in Ptolemy. These were as much a part of the astrological doctrine as Ptolemy's teachings and were always seen as complementary, adding to Ptolemy's work rather than contradicting it. The merging of these approaches to astrological doctrine is clearly seen in the works and commentaries of Late Antiquity which use many different sources other than Ptolemy. This resulted in a unified tradition that included the debate over divergent doctrines and differences in methodology, which was consistently transmitted and developed upon in the works of the medieval Arabic, Jewish, and afterwards Latin Christian writers. By the fifteenth century, in the wake of the Renaissance and the rediscovery of Greek texts, Ptolemy's methods and doctrines contained in the *Quadripartitum* (or *Tetrabiblos*) and in the

¹⁵ An overall discussion is presented in Vanden Broecke, *The Limits of Influence*, chap. 3. See also H Darrel Rutkin, 'Astrology', in *The Cambridge History of Science: Volume 3, Early Modern Science*, ed. Roy Porter, Katharine Park, and Lorraine Daston (Cambridge: Cambridge University Press, 2006), 547–52; and Steven Vanden Broecke, 'Astrology in the Early Modern Period: Practices and Concepts', in *Encyclopedia of Early Modern Philosophy and the Sciences*, ed. Dana Jalobeanu and Charles T. Wolfe (Cham: Springer International Publishing, 2020), 1–11.

¹⁶ For modern editions of these works see Dorotheus of Sidon, *Carmen Astrologicum: The 'Umar al-Tabari Translation*, trans. Benjamin N. Dykes, 2nd ed. (Minneapolis: Cazimi Press, 2019); Dorotheus of Sidon, *Carmen Astrologicum*, trans. David Pingree (Abingdon, MD: Astrology Classics, 2005).

Centiloquium (a pseudepigraphic text assumed to be by Ptolemy),¹⁷ began a gradual but significant revival. This emphasised the discrepancies between the different traditions, and as a result, a debate arose on the validity of certain traditional techniques, and their sources. The authority of the non-Ptolemaic traditions was put into question when compared to those presented on the *Quadripartitum*.¹⁸ An example was the debate on the validity of the theory of Jupiter-Saturn conjunctions as presented by the work of Albumasar (Abū Ma'shar Ja'far ibn Muḥammad al-Balkhī) *On the Great Conjunctions*; this doctrine was endorsed by most medieval astrologers, but it was not present in Ptolemy's work.¹⁹ Another example was the matter of the essential dignities, in particular the terms and the triplicities. The traditional standard definition of these astrological concepts was different from Ptolemy's – a fact that generated a long debate in the sixteenth and seventeenth centuries and caused an irreversible change in the use of these core elements of the astrological doctrine.²⁰ Slowly the scale began to tip towards Ptolemaic doctrine, and many authors, believing that the differences were later Arabic additions, began to advocate their expungement from the astrological practice. The purpose was to obtain a more pristine and pure Greek astrology, of which Ptolemy was, of course, the model. In parallel, and underlying some of these changes, was the intent to modernise astrology so that it would become a more rational and effective science. This entailed the cleansing of all aspects of astrology considered superstitious or irrational, that could not be explained by reason of Natural Philosophy. This position became increasingly evident in the new authors that emerged during the sixteenth century, such as the highly influential Girolamo Cardano. However, the continuing dissensions engendered holes in the solidity of astrological doctrine, prompting early modern authors to fashion new approaches and solutions. The

¹⁷ Until the sixteenth century it was commonly believed that the *Centiloquium* was written by Ptolemy, making it as influential as the *Tetrabiblos*.

¹⁸ For the impact of Ptolemaic revisionism in astrology see: Dag Nikolaus Hasse, 'Astrology: Ptolemy against the Arabs', in *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance* (Cambridge, Massachusetts; London, England: Harvard University Press, 2016), 248–92; Ornella Pompeo Faracovi, 'The Return to Ptolemy', in *A Companion to Astrology in the Renaissance*, ed. Brendan Maurice Dooley, Brill's Companions to the Christian Tradition 49 (Leiden: Brill, 2014), 87–98; H Darrel Rutkin, 'The Use and Abuse of Ptolemy's *Tetrabiblos* in Renaissance and Early Modern Europe: Two Case Studies (Giovanni Pico Della Mirandola and Filippo Fantoni)', in *Ptolemy in Perspective*, ed. Alexander Jones, vol. 23, Archimedes (Dordrecht: Springer Netherlands, 2010), 135–49, <http://link.springer.com/10.1007/978-90-481-2788-7>; Brendan Dooley, 'The Ptolemaic Astrological Tradition in the Seventeenth Century: An Example from Rome', *International Journal of the Classical Tradition* 5, no. 4 (1999): 528–48.

¹⁹ For a recent on this debate see Giuseppe Bezza, 'Saturn-Jupiter Conjunctions and General Astrology: Ptolemy, Abu Ma'shar and Their Commentators', in *From Masha' Allah to Kepler: Theory and Practice in Medieval and Renaissance Astrology*, ed. Charles Burnett and Dorian Gieseler Greenbaum (Ceredigion, Wales: Sophia Centre Press, 2015), 5–48.

²⁰ In regard to the terms and their use see: Deborah Houlding, 'The Transmission of Ptolemy's Terms: An Historical Overview, Comparison and Interpretation', ed. Charles Burnett and Dorian Gieseler Greenbaum, *The Winding Courses of the Stars: Essays in Ancient Astrology. Culture and Cosmos*, Culture and cosmos, 11, no. 1–2 (2007): 261–307; Stephan Heilen, 'Ptolemy's Doctrine of the Terms and Its Reception', in *Ptolemy in Perspective: Use and Criticism of His Work from Antiquity to the Nineteenth Century*, ed. Alexander Jones, Archimedes 23 (Dordrecht; New York: Springer, 2010), 45–93.

resulting myriad of contrasting ideas is evident in seventeenth-century authors, who frequently cite the opinion of the new sixteenth-century authors comparing it to earlier versions of the tradition.

Astrology in print

Contemporary to these changes was the advent of printing, which allowed a quick spread of astrological knowledge. It began with the publication of tables and ephemerides essential to astrological calculation. These were followed by the printing of many traditional works containing the basis of the doctrine. Examples of this are the publication of Ptolemy's *Quadripartitum* and *Centiloquium* (1484), Alcabitius' *Introductorium* (1473), Haly Abenragel's *De iudiciis astrorum*, (1485), Albumasar's *Flores* (1488), *Introductorium*, and *De magnis coniunctionibus* (1489). Next came the publication of new astrological material that, due to their modernity in language and didactical approach rapidly became the preferred sources for the study of astrology. Texts such as those of Pedro Ciruelo (1470-1548), Luca Gaurico (1475-1558), Johannes Schöner (1477-1547), Girolamo Cardano (1501-1576), Francesco Giuntini (1523-1590), and Johann Gartzke (Johannes Garcaeus) (1530-1574) circulated throughout Europe, becoming required reading to any student of astrology. They disseminated new theories on house division, updated forms of calculation, and most importantly, consolidated the aforementioned debate surrounding the use, source and validity of many fundamental facets of the astrological doctrine.²¹ These came either from the authors' own practical experience or from their stance on the ongoing revisionist trend aimed at a more scientific or rational astrology. In these primers it is possible to survey the internal changes in astrological doctrine, which in turn influenced those learning from them. Some of these changes will be addressed further on. The new texts were also paramount in infusing a new strength to astrology, keeping it updated and modernised. However, they were also vehicles of dissention at the very core of the art, as each author promoted their personal view on particular aspects of astrology, creating factions and increasing the divergence of opinions. But as much as they were agents of change, they were also essential cornerstones that helped to consolidate the astrological practice throughout the entire early modern period. They stand as a counterpart to the ongoing debates against astrology, establishing a clear separation between the educated academic knowledge and its more popular versions. Most importantly, they kept astrology alive

²¹ There are no thorough studies of the technical content of the astrological book in this period, so many of these changes are still uncharted. A valuable contribution to this study was recently published by Andreas Lerch, *Scientia astrologiae: Der Diskurs über die Wissenschaftlichkeit der Astrologie und die lateinischen Lehrbücher 1470-1610* (Leipzig: AVA, 2015).

and strong in face of its attackers by validating its practice, not only by arguments, but also through example.

Not all aspects of the dissemination of astrology through printing contributed to its acceptance. At the forefront of astrological publications were the popular almanacs. These contained, alongside the calendar and listings of astronomical events (such as lunations, eclipses, beginning of seasons), annual predictions concerning weather and the general state of affairs. Almanacs were always a very heterogeneous genre. On one end of the spectrum were the academically produced medical almanacs for professional use, capable of prompting further study of the discipline; on the other end, the more popular astrological calendars for the common people, which mixed astrology with folk knowledge and all sorts of curiosities. The latter became increasingly popular and lucrative for the printing houses, and the demand for profit led to the production of a plethora of low-quality almanacs that contributed to the vulgarization of astrology, with their over-simplified contents. Their most attractive feature were the annual predictions, which increased in number and soon were instrumentalized to support religious and political views.²² Importantly, they also turned out to be the medium by which the astrologer's personal opinions (either on astrological doctrine or otherwise) arrived in print, and thus attained considerable impact. By means of the almanacs, more perhaps than through books, what was once the mediocre and unknown practitioner's view gained the status of public speech, thus rivalling the power of tradition and of educated authors. By reinforcing the power of astrological knowledge, the popular publications gave it unprecedented visibility and strength. Yet, at the same time they also emphasised some of its darker sides: the manipulation of public opinion and the endorsement of simplistic versions of astrology which reinforced misinformation on astrology itself. This was certainly one of the main reasons that fuelled the opponents of astrology, but certainly not the only one. The case of the flood prediction for 1524 is one of the most well-known examples of the impact of the almanacs and popular prognostication, as well as of their ability to harm astrology itself. In this case, a rather

²² For a more comprehensive view of the role of almanacs in early modern culture see Bernard Stuart Capp, *Astrology and the Popular Press: English Almanacs 1500-1800* (London: Faber, 1979); Luís Miguel Carolino, *A escrita celeste: almanaques astrológicos em Portugal nos séculos XVII e XVIII*, *Memória & saber* (Rio de Janeiro: Access, 2002); Luís Miguel Carolino, *Ciência, astrologia e sociedade: a teoria da influência celeste em Portugal (1593-1755)* (Lisboa: Fundação Calouste Gulbenkian, Fundação para a Ciência e a Tecnologia, 2003); Elide Casali, *Le Spie Del Cielo: Oroscopi, Lunari e Almanacchi Nell'Italia Moderna*, Biblioteca Einaudi 158 (Torino: Einaudi, 2003); Justin Rivest, 'Printing and Astrology in Early Modern France: Vernacular Almanac-Prognostications, 1497-1555' (MA dissertation, Ottawa, Carleton University, 2004); William E. Burns, 'Astrology and Politics in Seventeenth-Century England: King James II and the Almanac Men', *The Seventeenth Century* 20, no. 2 (2005): 242-53; Louise Hill Curth, *English Almanacs, Astrology and Popular Medicine, 1550-1700* (Manchester: Manchester University Press, 2007); Stephan Heilen, *Konjunktionsprognostik in der Frühen Neuzeit. Band I. Die Antichrist-Prognose des Johannes von Lübeck (1474) zur Saturn-Jupiter-Konjunktion von 1504 und ihre frühneuzeitliche Rezeption*, vol. 1 (Baden-Baden: Valentin Koerner, 2020).

harmless commentary in Johann Stöffler and Jakob Pflaum's ephemeris of 1499 regarding the conjunctions of Mars, Jupiter and Saturn in the sign of Pisces, was exaggerated by some almanac authors into a prediction of a second universal deluge. This caused upheaval and panic throughout Europe and as a response many pamphlets were produced dismissing the prediction and by extension discrediting astrology and astrologers.²³ This was not the first time that astrology had to face heavy criticism, but it was certainly the first instance of it reaching such a level of visibility. Previously, astrological practice had had its strong critics. In the fourteenth century this came in the voices of Henry of Langenstein (c.1325-1397) and Nicole Oresme (c.1320-1382), but by the very end of the fifteenth century, the emerging misuse and exaggeration prompted an even stronger response, and astrology faced one of its most enduring challenges: Giovanni Pico della Mirandola's *Disputationes adversus astrologiam divinatricem*.²⁴

Pico's critique

Published posthumously in 1496, the *Disputationes* has been considered 'the most extensive and incisive attack on astrology that the world had yet seen'.²⁵ It had a long-lasting effect not only in the practice, but also on the very conception of astrology. Pico's work and his relationship with astrology is a complex subject and it will only be addressed generally in this short introduction.²⁶ His earlier works suggest an acceptance of the discipline, but

²³ There are several studies on the impact of the predictions for 1524. Some relevant studies are: William Eamon, 'Astrology and Society', in *A Companion to Astrology in the Renaissance*, ed. Brendan Maurice Dooley, Brill's Companions to the Christian Tradition 49 (Leiden: Brill, 2014), 142–51; Jonathan Green, *Printing and Prophecy: Prognostication and Media Change 1450-1550*, Cultures of Knowledge in the Early Modern World (Ann Arbor: University of Michigan Press, 2012), 139–50; Rivest, 'Printing and Astrology in Early Modern France', 65–73; Paola Zambelli, *Astrology and Magic from the Medieval Latin and Islamic World to Renaissance Europe: Theories and Approaches*, Variorum Collected Studies Series (Abingdon: Routledge, 2012), 1–28, 239–63.

²⁴ On Langenstein, see Lynn Thorndike, *History of Magic and Experimental Science. The Fourteenth and Fifteenth Centuries*, vol. 3 (New York: Macmillan, 1934), 472–510; for a study of Oresme's views see George William Coopland, *Nicole Oresme and the Astrologers. A Study of His Livre de Divinacions* (Cambridge: Harvard University Press, 1952); Stefano Caroti, 'Nicole Oresme's Polemic Against Astrology, in His Quodlibeta', in *Astrology, Science, and Society: Historical Essays*, ed. Patrick Curry (Woodbridge, Suffolk: Boydell & Brewer Inc, 1987), 75–93; see also Maria Sorokina, 'Un tournant dans la critique de l'astrologie? La Summa de astris de Gérard de Feltre', *Philosophical Readings* 1, no. VII (2015): 71–92; and *Les sphères, les astres et les théologiens. L'influence céleste entre science et foi dans les commentaires des Sentences (v. 1220-v. 1340)* (Turnhout: Brepols, 2021).

²⁵ Vanden Broecke, *The Limits of Influence*, 55.

²⁶ This subject has had the attention of many scholars, for example: Thorndike, *History of Magic and Experimental Science*; Anthony Grafton, 'Giovanni Pico Della Mirandola: Trials and Triumphs of an Omnivore', in *Commerce with the Classics: Ancient Books and Renaissance Readers*, ed. Anthony Grafton (Ann Arbor: University of Michigan Press, 1997), 93–134; Sheila J. Rabin, 'Kepler's Attitude Toward Pico and the Anti-Astrology Polemic', *Renaissance Quarterly* 50, no. 3 (1997): 750–70; Vanden Broecke, *The Limits of Influence*; H Darrel Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700: Studies Toward an Interpretation of Giovanni Pico Della Mirandola's "Disputationes Adversus Astrologiam Divinatricem"' (PhD thesis, Bloomington, Indiana University, 2002); H Darrel Rutkin, 'Giovanni Pico Della Mirandola's Early Reform of Astrology: An Interpretation of "Vera Astrologia" in the Cabalistic Conclusions', *Bruniana & Campanelliana* 10, no. 2 (2004): 495–98; H Darrel Rutkin, 'Mysteries of Attraction: Giovanni Pico Della Mirandola, Astrology and Desire', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, Stars, Spirits, Signs: Towards a History of Astrology 1100-1800, 41, no. 2 (2010):

unexpectedly, at the end of his life the *Disputationes* appear to present an entirely different opinion. As this work was published from a draft version by his nephew, Gianfrancesco Pico della Mirandola (c.1470-1533), and his physician, Giovanni Manardo (1462-1536), there have been doubts as to how much of it is authored by Pico and how much derives from the editing by its compilers. Recent studies propose that Pico's attitude towards astrology is the direct result of his philosophical itinerary.²⁷ He moved progressively into the natural science of Aristotle coming from his earlier interests of Neoplatonism and Kabbalah; it is from this Aristotelian perspective that he mounts his critique of astrology. Even considering the unfinished structure of the *Disputationes*, the rejection of astrology is consistent throughout the work, leaving little doubt as to Pico's intentions. The criticism is rooted in two main points: the first is that no great philosopher or theologian had ever supported the idea of predictions, a matter that he argues historically; the second is the incompatibility of astrological prognostication with physical reality by means of Aristotelian natural philosophy. Here he discusses the incompatibilities and inconsistencies between astrological doctrine and practice, and the theory of celestial influence. The book had an undeniable and profound impact on astrological practice, since it fuelled most of the subsequent criticism on astrology and is still considered today as one of the most influential works of the Renaissance. However, seeing it merely as an attack on astrology is for some scholars short-sighted. Steven Vanden Broecke considers that Pico's attitude towards astrological theory was more forgiving than is usually assumed, and that his work was intended as an attack on the popular prognostications based on conjunction theories.²⁸ In this perspective the *Disputationes* can be viewed as a sophisticated call for the reform of the astrological practice and Pico's rejection of astrology a result of the social challenges of popular astrology in the 1480s and 1490s, which compromised the relation between religion and natural philosophy. Thus, Pico attacks the parts of astrology that he considers irrational, such as the aforementioned conjunction theory, and discusses what he considers to be adequate models for the physics behind astrology. Most of the issues raised in his argumentation focus on the various problems

117–24; Rutkin, 'The Use and Abuse of Ptolemy's Tetrabiblos in Renaissance and Early Modern Europe: Two Case Studies (Giovanni Pico Della Mirandola and Filippo Fantoni)'; Ornella Pompeo Faracovi, 'Giovanni Pico Della Mirandola e La Riforma Dell'astrologia', *Philosophical Readings* VII, no. 1 (2015): 93–109; Ovanes Akopyan, 'Giovanni Pico Della Mirandola, Ptolemy and "Astrological Tradition"', no. Accademia (2010): 37–49; Ovanes Akopyan, 'Controversies on Astrology in Renaissance Italy (Late Fifteenth - Early Sixteenth Centuries)' (Ph.D., University of Warwick, 2017), <http://wrap.warwick.ac.uk/98782/>; Ovanes Akopyan, "'Princeps Aliorum' and His Followers: Giovanni Pico Della Mirandola on the "Astrological Tradition" in "the Disputationes Adversus Astrologiam Divinatricem"', *Renaissance Studies* 32, no. 4 (2018): 547–64; Ovanes Akopyan, 'Giovanni Pico Della Mirandola and Astrology (1486–1493): From Scientia Naturalis to the Disputationes Adversus Astrologiam', *I Tatti Studies in the Italian Renaissance* 21, no. 1 (2018): 47–66.

²⁷ Akopyan, 'Giovanni Pico Della Mirandola and Astrology (1486–1493)'.

²⁸ Vanden Broecke, *The Limits of Influence*, 60–63.

concerning the accumulated practical experience that Latin astrologers claimed to possess. Pico considers that not enough time had passed for a sufficient number of observations of the same configuration to occur and to be tested; therefore, the astrologers' so-called 'experience' was based on mere conjecture. Furthermore, the inaccuracy of astronomical calculations would have led to erroneous conclusions by the astrologers. To accomplish his critique Pico systematically discusses the contradictions in astrological doctrine, exposes the inconsistencies among authors, including philological problems with sources and translations, making what has been called an 'iconoclastic dissection of the astrological canon.'²⁹ Some authors, such as Lynn Thorndike, highlight several of the inconsistencies in Pico's discourse and consider some of his argumentation biased towards his desired conclusions.³⁰ Ptolemy, for example, is spared from most of Pico's critique and he uses the *Tetrabiblos* as he sees fit to support his arguments both in favour and against certain astrological practices.³¹

As would be expected, there were strong reactions to the *Disputationes* and many works were published rebutting Pico's attack on astrology, which so far had less historiographic visibility. Some of the earlier examples are the *Responsiones in disputationes Johannis Pici adversus astrologicam veritatem*, by Lucio Bellanti, published in 1498 with his work *De astrologica veritate*. Others are the *Defensio Astronomiae* published in 1507 by Gabriele Pirovano, and the *Libellus* by Michael de Petrasancta published in 1521.³²

Despite their adversarial intent towards astrological tradition, and considering the various responses of astrology's defenders, Pico's words found an unexpectedly fertile ground in the very people he was attacking: the astrologers themselves. Pico's criticism of astrological doctrine intensified the latent tendency towards revisionism that by the end of the fifteenth century had been gaining strength among practitioners of astrology. Some of Pico's technical arguments were not new, but he appears to have made a good case, using the existing discussion on astrological techniques as the basis of his critique. The impact of the *Disputationes* endured throughout the sixteenth and seventeenth centuries and it became the very model on which to base any and all criticism of astrology.

²⁹ Vanden Broecke, 77.

³⁰ Lynn Thorndike, *History of Magic and Experimental Science. The Fourteenth and Fifteenth Centuries*, vol. 4 (New York: Columbia University Press, 1934), 529–43.

³¹ See Vanden Broecke, *The Limits of Influence*; Rutkin, 'The Use and Abuse of Ptolemy's Tetrabiblos in Renaissance and Early Modern Europe: Two Case Studies (Giovanni Pico Della Mirandola and Filippo Fantoni)'.

³² Lucio Bellanti, *Liber de astrologica veritate contra Johannem Picum Mirandulam* (Firenze: Gherardum de Haerlem, 1498); Gabriel Pirovano, *Defensio astronomiae* (Milano: apud Alexandrum Minutianum, 1507); Michele Petrasanta, *Libellus in defensionem Astrologorum iudicantium ex conjunctionibus planetarum in piscibus Anni M.D. XXIII* (Roma: Marcellum Silber, 1521).

Chapter 2. The Church and Astrology

One of the most pervasive challenges to the practice of astrology in the early modern period was perhaps the Catholic Church and the sanctions it imposed in the aftermath of the Council of Trent. The uneasy relationship between the Church and astrology has a long and complex history, too vast to discuss here.³³ However, since this study is centred on the teaching and practice of astrology by a Christian religious order, it becomes paramount to discuss this matter in more detail. This chapter addresses the general grounds needed to understand the relation between astrology and the Church during the sixteenth and seventeenth centuries, and, most importantly, the sanctions put into place in the second half of sixteenth century.

A clash of doctrines

Since Antiquity astrology was the discipline which studied the widely accepted principle that the motion of the heavens had direct implication on earthly events. Thus, astrology was, and continued to be, until the end of the seventeenth century, a central part in the human conception of the Cosmos. Christian religion, along with many others, naturally incorporated such concepts in its narrative, making it quite expectable to find astrological references in the Bible and in other Christian writings.³⁴ While this natural usage of astrology presented no problems to Christian doctrine, its ability to predict the future always generated debate among theologians. Earlier Christian writers presented several arguments against astrology, often placing it in the same context as magic or other forms of divination, attributing its forecasting abilities to demonic influence. The most influential of these authors is undoubtedly Augustine of Hippo, a major figure of early Christianity whose works became one of the main sources for the Christian condemnation of astrological practices.³⁵ The tale of his adherence to astrology in his youth and ultimate rejection when he embraced Christianity is often cited as exemplary by many Christian

³³ For an overview of this matter, see Ugo Baldini, 'The Roman Inquisition's Condemnation of Astrology: Antecedents, Reasons and Consequences', in *Church, Censorship and Culture in Early Modern Italy*, ed. Gigliola Fragnito (Cambridge: Cambridge University Press, 2001), 79–110; Ugo Baldini and Leen Spruit, *Catholic Church and Modern Science: Documents from the Archives of the Roman Congregations of the Holy Office and the Index. Volume I. Sixteenth-Century Documents*, vol. 1 (Roma: Libreria editrice vaticana, 2009); Graziella Federici Vescovini, 'The Theological Debate', in *A Companion to Astrology in the Renaissance*, ed. Brendan Dooley (Leiden: Brill, 2014), 99–140; Rutkin, *Sapientia Astrologica*, 173–234.

³⁴ See for example Ida Zatelli, 'Astrology and the Worship of the Stars in the Bible', *Zeitschrift für die alttestamentliche Wissenschaft* 103, no. 1 (1991): 86–99. Some of these references are often associated with cosmological and astronomical concepts.

³⁵ See Tim Hegedus, *Early Christianity and Ancient Astrology* (New York: Peter Lang, 2007), 45–47; and also Lynn Thorndike, *History of Magic and Experimental Science. During the First Thirteenth Centuries of Our Era*, vol. 1 (New York: Columbia University Press, 1923), 506–22.

authors.³⁶ Augustine's main arguments can be found in *De civitate Dei*, *Confessions* and *De doctrina christiana*. He considers astrology a 'deadly superstition' which enslaves people into fatalism:

Although they investigate the true position of the stars at a person's birth and sometimes actually succeed in working it out, the fact that they use it to try to predict our activities and the consequences of these activities is a grave error and amounts to selling uneducated people into a wretched form of slavery. When free people go to see such an astrologer, they pay money for the privilege of coming away as slaves of Mars or Venus, or rather all the stars...³⁷

This statement embodies the main concern of the Church with astrological prognostication: the issue of human free will. For the most part Christian doctrine was not so much concerned with the use of astrology for weather forecasting, medicine, or even with elections for the best times for crops and harvest. The main point of attack was on any prognostication of human events, especially those concerning human destiny. Considerations such as the number of children, marriages, the native's honours and achievements, the number and fortune of brothers, friends, and similar topics were considered divination and a direct infringement on human free will:

But whatever men may call them, the heavenly bodies, which God made and arranged as he wished, certainly exist, and have fixed orbits from which the seasons derive their differences and variations. It is easy to record the details of these orbits when a person is born, according to the rules which they have invented and codified. ... But the idea of using this data to predict the character and future actions and experiences of the new-born is a great mistake, and indeed great folly.³⁸

This was above all a moral issue. If such prognostications were possible, then one's fate would already be predetermined. Consequently, any sin committed, any absolution reached, as well as the very possibility of salvation would already be preordained. Thus, this type of prediction, even as a mere possibility, was seen as incompatible with Christianity and strongly condemned. Augustine goes even further and demonstrates little tolerance for any kind of astrological forecasting. He presents several arguments to demonstrate the foolishness of astrology, most of which are sourced from previous authors.³⁹ One of the most persistent of these arguments is that of twins. This is a recurrent topic in his writings and apparently the main backbone of his critique. He questions the validity of casting astrological figures for birth by taking the example

³⁶ Augustine, *Confessions* 4.3.4–6. J. G. Pilkington, *The Confessions of St Augustine* (New York: Liveright Publishing Corp, 1943), 62–64.

³⁷ Augustine, *De doctrina Christiana*, 2.78–79. *Augustine De Doctrina Christiana*, Oxford Early Christian Texts (Oxford: Clarendon Press, 1995), 93–95.

³⁸ Augustine, *De doctrina Christiana*, 2.81–82: 95–97.

³⁹ Thorndike, *History of Magic and Experimental Science. During the First Thirteenth Centuries of Our Era*, 1923, 1:513–22; Leo Charles Ferrari, 'Augustine and Astrology', *Laval théologique et philosophique* 33, no. 3 (1977): 241; Hegedus, *Early Christianity and Ancient Astrology*, 52–59.

of twins, which have different fates despite being born almost at the same time and having almost identical astrological figures. Hence, Augustine considers that the astrologer ‘must therefore speak falsely, or if truly, then, looking into the same figures, he must not speak the same things. Not then by art but by chance would he speak truly.’⁴⁰ This argument is used also to discredit some associations of astrology with medicine, as well as any doctrine based on the chart of conception (also used in medical astrological judgements). Augustine argues that even considering that twins have slightly different astrological charts, they are still conceived in a single act, thus astrology is proven a falsehood since the same moment of conception generates two individuals with different lives.⁴¹ Although this erroneously concedes an importance to the conception chart that it did not had in the practice of astrology, it will still become a frequent argument among the critics of astrology. Augustine also questions on electing times to things such as marriage, planting and sowing, and mocks astrology by considering the possibility of birth charts for animals and even plants. As most authors writing against astrology and its prognosticatory applications to human life, he attributes astrology’s generally accepted effectiveness to tricks of the astrologers, or worse, to spirits and demons, a point on which the Church will persistently draw upon:⁴²

we have good reason to believe that, when the astrologers give very many wonderful answers, it is to be attributed to the occult inspiration of spirits not of the best kind, whose care it is to insinuate into the minds of men, and to confirm in them, those false and noxious opinions concerning the fatal influence of the stars, and not to their marking and inspecting of horoscopes, according to some kind of art which in reality has no existence.⁴³

Yet, despite the extremely antagonistic argumentations of Augustine and others, astrology maintained a central placement in the pre-modern world, having numerous important applications in human affairs, such as politics, medicine, and weather forecast. Its effectiveness was difficult to question, particularly from a learned perspective since celestial influence was a widely unquestioned natural phenomenon. Many of the arguments presented by Augustine, and those following him, were consistently refuted by the educated astrologers, who considered these critiques exaggerated and unrealistic to the reality of proper astrological practice. Consequently, not all Christian authors were antagonistic to astrology. Among its most notable defenders are Albert the Great and Thomas Aquinas, who conceived a lawful practice of

⁴⁰ Augustine, *Confessions* 7:10 . Pilkington, *The Confessions of St Augustine*, 143–44.

⁴¹ Augustine, *Civitate Dei* 5.2. *The Works of Aurelius Augustine: A New Translation*, ed. Marcus Dods, vol. 1 (Edinburgh: T. & T. Clark, 1881), 179–81.

⁴² For a larger discussion on this matter see Hegedus, *Early Christianity and Ancient Astrology*, 125–37.

⁴³ Augustine, *Civitate Dei* 5.7: 188

astrology in the context of Christian faith.⁴⁴ Aquinas, became the most influential author on this matter during the Early Modern period and a cornerstone on which to base a defence of astrology in Christian context. His most extensive texts on astrology are the *Summa contra gentiles*, *Summa Theologica*⁴⁵ and the letter *De iudiciis astrorum*, where he replies to a question regarding his view on the legitimacy of astrology. As expected for any Christian author, he makes a clear separation between divination and astrological prognostication and emphasises astrology as the natural result of celestial influence. He recognizes the influences of the movement of the heavens on the inferior bodies, and therefore the possibility to forecast weather, abundance of crops, or human illness as a licit type of prognostication. Conversely, prognostication on chance events, or actions depending on human free will are considered to be divination and superstition, and thus illicit:

In first place it is necessary to know that the power of the celestial bodies extends to modify the inferior bodies. Indeed Augustine, in the fifth book of *De civitate Dei*, says ‘is not altogether absurd to say that certain sidereal influences have some power to cause differences in bodies alone’. Thus, if someone resorts to the judgements of the star to predict corporeal effects – as for example a storm or serenity of air, the heat or sickness of the body, the abundance or scarcity of fruits, and other similar things that depend on corporeal and natural causes – it seems clear that there is no sin. For all men, regarding this type of effects, make use of some observation of the celestial bodies, such as the farmers that seed and harvest at certain times that can be observed in the movement of the Sun; the sailors who avoid navigations at the full moon or on the eclipses; the physicians, on matter of sickness, observe the critical days determined by the movement of the Moon. It is therefore no inconvenience – including the resort to other less perceivable celestial observations – to make use of the judgement of the stars to know corporeal effects. However, it is absolutely necessary to maintain that the will of men is not subject to the necessity of the stars, for otherwise it would be the end of free will, by whose suppression no merit would be attributed to good actions, nor blame from bad ones. And as such, any Christian must have for certain that those things that depend on the human will, as are all human actions, are not subject to the necessity of the stars, and because of this Jeremiah says ‘be not dismayed at the signs of heaven; for the heathen are dismayed at them’ (Jr. 10.2).⁴⁶

⁴⁴ On Albert the Great and his views on astrology see H Darrel Rutkin, ‘Astrology and Magic’, in *A Companion to Albert the Great: Theology, Philosophy, and the Sciences*, ed. Irven Resnick (Leiden - Boston: Brill, 2012), 451–505; Jean-Patrice Boudet, *Entre Science et Nigromance: Astrologie, Divination et Magie Dans l’occident Médiéval, XIIe-XVe Siècle*, Histoire Ancienne et Médiévale 83 (Paris: Publications de la Sorbonne, 2006), 228–34; and also, Paola Zambelli and Albertus, *The Speculum Astronomiae and Its Enigma: Astrology, Theology, and Science in Albertus Magnus and His Contemporaries*, Boston Studies in the Philosophy of Science, v. 135 (Dordrecht - Boston: Kluwer Academic, 1992).

⁴⁵ In particular, *Summa contra gentiles*, III.82–88 and *Summa Theologica*, 115. Thomas Aquinas, *On the Truth of the Catholic Faith. Summa Contra Gentiles. Book Three: Providence*, ed. Vernon J. Bourke, vol. 1 (New York: Image Books, 1956), 274–78; *On the Truth of the Catholic Faith. Summa Contra Gentiles. Book Three: Providence*, ed. Vernon J. Bourke, vol. 2 (New York: Image Books, 1956), 13–34; *Summa Theologica*, vol. 1 (New York: Cosimo, Inc., 2013), 559–66.

⁴⁶ In primis ergo oportet te scire quod uirtus celestium corporum ad immutanda inferiora corpora se extendit. Dicit enim Augustinus V De ciuitate Dei Non usquequaque absurde dici potest ad solas corporum differentias afflatus quosdam sydereos peruenire. Et ideo, si aliquis iudiciis astrorum utatur ad prenoscendum corporales effectus, puta tempestatem et serenitatem aeris, sanitatem uel infirmitatem corporis, uel ubertatem et sterilitatem fructuum, et cetera huiusmodi que ex corporalibus et naturalibus causis dependent, nullum uidetur esse peccatum. Nam omnes homines circa huiusmodi effectus aliqua obseruatione utuntur celestium corporum: sicut agricole seminant et metunt certo tempore quod obseruatur secundum motum solis; naute nauigationes uitant in plenilunio, uel in lune defectu; medici circa egritudines ceticos dies

Aquinas grounds part of his argumentation in Augustine's remarks on the possibility of celestial influence. Yet, Augustine's argument was not intended as favourable to astrology. On the contrary, he ends his statement highlighting that celestial influence does not apply to human will and incites the search for causes other than the stars:

But, whilst it is not altogether absurd to say that certain sidereal influences have some power to cause differences in bodies alone, as, for instance, we see that the seasons of the year come round by the approaching and receding of the sun, and that certain kinds of things are increased in size or diminished by the waxing and wanings of the moon, such as sea-urchins, oysters, and the wonderful tides of the ocean, it does not follow that the wills of men are to be made subject to the position of the stars. The astrologers, however, when they wish to bind our actions also to the constellations, only set us on investigating whether, even in these bodies, the changes may not be attributable to some other than a sidereal cause.⁴⁷

However, Aquinas uses Augustine's recognition of celestial influence and takes it in an almost opposite direction. He shifts the focus of statement by exploring the relationship between body and soul as a means to validate a natural practice of astrology:

However, we should note that, though celestial bodies cannot be directly the causes of our understanding, they may do something indirectly in regard to it. For, although the understanding is not a corporeal power, the operation of understanding cannot be accomplished in us without the operation of corporeal powers: that is, the imagination, the power of memory, and the cogitative power, as is evident from preceding explanations. ... Now, the condition of the human body does come under the influence of celestial motions. In fact, Augustine says, in the *City of God* V, that 'it is not utterly absurd to say that certain influences of the stars are able to produce differences in bodies only.' And Damascene says, in Book II, that 'different planets establish in us diverse temperaments, habits and dispositions.' So, the celestial bodies work indirectly on the good condition of understanding. Thus, just as physicians may judge the goodness of an intellect from the condition of its body, as from a proximate disposition, so also may an astronomer judge from the celestial motions, as the remote cause of such dispositions. In this way, then, it is possible that there is some truth in what Ptolemy says in his *Centiloquium*: 'When, at the time of a man's birth, Mercury is in conjunction with Saturn and is itself in a strong condition, it gives inwardly to things the goodness of understanding.'⁴⁸

Following these premises, Aquinas offers an explanatory mechanism by which astrological prognostication could be justified, and even exemplifies it by quoting Ptolemy. This becomes one of his most influential argumentations for the possibility of astrological prognostication on

observant, qui determinantur secundum cursum solis et lune. Vnde non est inconueniens, secundum aliquas alias occultiores observationes stellarum, circa corporales effectus uti astrorum iudicio. Hoc autem omnino tenere oportet, quod uoluntas hominis non est subiecta necessitati astrorum; alioquin periret liberum arbitrium, quo sublato non deputerentur homini neque bona opera ad meritum, neque mala ad culpam. Et ideo certissime tenendum est cuilibet christiano, quod ea que ex uoluntate hominis dependent, qualia sunt omnia humana opera, non ex necessitate astris subduntur; et ideo dicitur Ier. x A signis celi nolite metuere que gentes timent. Aquinas, *De iudiciis astrorum* (my translation). Thomas Aquinas, 'Thomas de Aquino, De iudiciis astrorum', Corpus Thomisticum, 2011, <http://www.corpusthomisticum.org/ote.html#69900>.

⁴⁷ Augustine, *Civitate Dei* 5.6: 186.

⁴⁸ *Summa contra gentiles*, III.84 (the quote is from *Centiloquium* sentence 38). Aquinas, *On the Truth of the Catholic Faith. Summa Contra Gentiles. Book Three: Providence*, 1956, 2:17–18.

human behaviour, summarised in the famous sentence: ‘astra inclinant, sed non necessitant’ (‘the stars incline, but do not necessitate’). The argument follows the premise that the stars act upon the body, which is physical by nature. Since the body is the vehicle for the intellect or soul, it can in certain circumstances constrain the expression of the intellect. Therefore, the stars can influence the intellect, indirectly through the body, even if they have no direct influence on the intellect, and thus on human free will. In sum, the stars can influence the human passions since they result from the bodily organs and humours, and consequently, they can influence human actions, if one is not wise enough to control them:

The majority of men follow their passions, which are movements of the sensitive appetite, in which movements of the heavenly bodies can cooperate: but few are wise enough to resist these passions. Consequently, astrologers are able to foretell the truth in the majority of cases, especially in a general way. But not in particular cases; for nothing prevents man resisting his passions by his free-will. Wherefore the astrologers themselves are wont to say that the wise man is stronger than the stars, forasmuch as, to wit, he conquers his passions.⁴⁹

From this point of view celestial influence does not affect the soul, and it can be countered by human will, which agrees with Christian doctrine. At the same time, by recognizing the conditioning of the soul by the body, the argument opens the possibility for astrological prognostication on human life. Judgements can be made on individual temperaments and general behavioural tendencies, that is all human actions driven by bodily passions. As these predictions are made within the realm of physical and natural possibilities, they are licit. Additionally, Aquinas emphasises on several occasions the fact that since most people follow their impulses, astrological predictions have even greater possibility of success. Once more he makes a direct connection to astrology by quoting Ptolemy:⁵⁰

At times, too, a human act may be caused by the celestial bodies, in the sense that some people become demented as a result of a bodily indisposition and are deprived of the use of reason. Strictly speaking, there is no act of choice for such people, but they are moved by a natural instinct, as are brutes. Moreover, it is plain and well known by experience that such occasions, whether they are external or internal, are not the necessary cause of choice, since man is able, on the basis of reason, either to resist or obey them. But there are many who follow natural impulses, while but few, the wise only, do not take these occasions of acting badly and of following their natural impulses. This is why Ptolemy says, in his *Centiloquium*: “the wise soul assists the work of the stars”; and that “the astronomer could not give a judgement based on the stars, unless he knew well the power

⁴⁹ *Summa Theologica*, I q.115 a.4 to 3 – ‘Ad tertium dicendum quod plures hominum sequuntur passiones, quae sunt motus sensitivi appetitus, ad quas cooperari possunt corpora caelestia, pauci autem sunt sapientes, qui huiusmodi passionibus resistant. Et ideo astrologi ut in pluribus vera possunt praedicere, et maxime in communi. Non autem in speciali, quia nihil prohibet aliquem hominem per liberum arbitrium passionibus resistere. Unde et ipsi astrologi dicunt quod sapiens homo dominatur astris, inquantum scilicet dominatur suis passionibus’. Translation adapted from: Thomas Aquinas, *The Summa Theologica of St. Thomas Aquinas. Part I QQ I.-XXVI*, trans. Fathers of the English Dominican Province, 2nd ed., vol. 1 (London: Burns Oates and Washbourne, 1920).

⁵⁰ Here Aquinas quotes from *Centiloquium*, sentences 1, 7 and 8.

of the soul and the natural temperament”; and that “the astronomer should not speak in detail on a matter, but in general.” That is to say, the impression from the stars produces its result in most people who do not resist the tendency that comes from their body, but it is not always effective, for, in one case or another a man may resist, perhaps, the natural inclination by means of reason.⁵¹

Aquinas does incorporate Augustine’s initial caveat, by recognising that not all corporeal effects result from celestial influence. Here Aquinas follows standard Aristotelian reasoning arguing that celestial influence, despite being a universal impression, is received differently by the diverse and changeable nature of material bodies. Therefore, the same influence does not necessarily produce the same effect all the time because of the variable nature of its recipients, nor on all kinds of bodies, since different bodies respond differently to the same influence. This is an argument consistently used by authors to explain the difficulty or impossibility of achieving highly precise predictions through astrology:

For the impressions of universal causes are received in their effects according to the mode of the recipients. Now, these lower things are fluctuating and do not always maintain the same condition: because of matter which is in potency to many forms and because of the contrariety of forms and powers. Therefore, the impressions of celestial bodies are not received in these lower things by way of necessity.⁵²

Yet, even considering the more favourable tone of Aquinas arguments, they still posed a serious limitation towards the general practice of astrology. Many were clearly outside of these parameters and deemed superstitious. One of them was the branch of interrogations, which dealt with answering questions on a given topic. Any question asked regarding a future outcome of a matter would be considered an infringement either of personal free will or on contingent and chance events. For example, to ask if an office would be gained would be infringing on the free will of the person deciding the promotion. In the same manner a question on whether a game of luck would be won, would be outside the natural scope of astrology, being a chance event. This would also extend to many types of elections. Another branch that was highly restricted was the study of nativities. A sizable portion of this form of astrology was considered as going against free will. As mentioned before, any matters that regarded individual fate, such as any actions involving a third person, in which fall the most common categories of astrological judgements, such as marriage, dealings with friends or the condition of the parents were inadmissible. Others, such as many of the traditional association of the signs with objects or places, were considered not to be justifiable by natural reasons and thus not licit to be practiced.

⁵¹ *Summa contra gentiles*, III.85; *On the Truth of the Catholic Faith. Summa Contra Gentiles. Book Three: Providence*, 1956, 2:24–25.

⁵² *Summa contra gentiles*, III.86; 2:25.

An art divided

To accommodate this friction between the need for astrological practice and the precepts of religious doctrine, a conceptual category of ‘natural astrology’ was gradually incorporated into the Christian narrative to make place for a lawful use of astrology.

Historiography has widely used the terms ‘natural’ and ‘judicial’ astrology to address the history of astrological practices. To put it simply, as is often done, ‘natural astrology’ encompassed the practices that were seen as licit by the Church and generally accepted because they were based in natural phenomena, and ‘judicial astrology’ comprised all practices that were deemed illicit, foolish and superstitious, and therefore condemned because they interfered with individual choice. This presents two problems: first such a division is not native to astrology itself and must be cautiously used when discussing astrological practices, and second, the historical use of such terms is much more complex than is usually perceived and can lead to an anachronistic perception of the concepts.

Regarding the first point, an overview of the numerous astrological treatises produced until the sixteenth century shows a certain consistency in the form of organizing astrology, where the categories of ‘natural’ and ‘judicial’, if extant (and these will be found almost exclusively in later Christian texts), are not central to astrology’s definition, nor its inner structuring. As mentioned before, the astrological corpus was divided into a theoretical set of principles, which are the core of the astrological doctrine, and into a set of practical rules and methodologies of interpretation. These were applied in four main areas: the larger and general events (revolutions), human births (nativities), the choice of propitious moments (elections), and the answering of specific questions (interrogations). The terms ‘natural’ and ‘judicial’ are not present in this organization, neither are they referred to in the oldest astrological texts, namely, the classical sources such as Ptolemy’s *Tetrabiblos*, and the multitude of Arabic and medieval Latin texts. In the introduction to *Tetrabiblos*, the main source from antiquity discussing astrology as a natural phenomenon, Ptolemy refers to two divisions of astronomical prediction (ἄστρονομίας προγνωστικὸν):

Of the means of prediction through astronomy, O Syrus, two are the most important and valid. One, which is first both in order and in effectiveness, is that whereby we apprehend the aspects of the movements of sun, moon, and stars in relation to each other and to the earth, as they occur from time to time; the second is that in which by means of the natural character of these aspects themselves we investigate the changes which they bring about in that which they surround. The first of these, which has its own science, desirable in itself even though it does not attain the result given by its combination with the second,

has been expounded to you as best we could in its own treatise by the method of demonstration.⁵³

Although he does not name them, he clearly is referring to a ‘first’ science concerned with the movement of the stars, that is what is currently called astronomy, which he ‘expounded’ in its own treatise, the *Almagest*; and a second, known presently as astrology, which interprets the changes caused by these movements and which he addresses in the *Tetrabiblos*. Although he mentions the ‘natural character’ of the celestial movements, there is absolutely no reference to either natural or judicial astrology. Ptolemy then organizes his exposition of astrology into four sections: book I deals with the basic principles of astrology, book II addresses the collective and worldly matters (countries, weather, eclipses, etc.), and books III and IV, present the rules for interpreting nativities and for individual predictions.

The Arabic authors follow a structure similar to that of Ptolemy’s. For example, Abū Rayḥān Muḥammad ibn Aḥmad Al-Bīrūnī (903-1048) in *The Book of Instruction in the Elements of the Art of Astrology* (*Kitab al-taḥfīm li-awa’il sina’at al-tanjīm*) divides the subject into: astronomical theory (part 1), calculation of celestial configurations and chronological data (part 2), fundamental astrological concepts (part 3), and judicial astrology (‘*ilm aḥkam al-nujūm – the science of the judgements of the stars*) (part 4).⁵⁴ In sum, he divides his book into astronomy (theory and practice) and astrology (theory and practice). Several later medieval Christian writers use similar formulas to organize their books and teachings. Indeed, the division into an introductory part on the theoretical principles, followed by a discussion of the practical rules is generally a standard form for the teaching of astrology.⁵⁵ In this structure, the term ‘judicial’ refers to the entire discipline of what currently is called astrology, the part which addresses the judgements. This means any practice of interpreting celestial configurations calculated through astronomy. Thus, any form of astrology whatsoever is in essence judicial, since it is by definition a body of knowledge that makes judgements. This is the concept that will be the standard usage in scholarly contexts until the seventeenth century. In texts where the term astronomy and astrology are interchangeable, the designation of theoretical astronomy or theoretical astrology is used to define what is currently called astronomy, and judicial astronomy or judicial astrology is used to define the interpretative part presently known simply as astrology. In sum, the term judicial derives from within the body of knowledge of

⁵³ Ptolemy, *Tetrabiblos* I.1.

⁵⁴ Muḥammad ibn Aḥmad Bīrūnī, *The Book of Instruction in the Elements of the Art of Astrology*, trans. Robert Ramsay Wright (London: Luzac & co, 1934).

⁵⁵ See, for example Vanden Broecke, *The Limits of Influence*, 12–13.

astronomy/astrology itself, better termed ‘the science of the stars’. The term ‘judicial’ is for the most part of the history of astrology stands as a synonym for astrology itself. Therefore, all astrology is by definition judicial, and the term only fully acquires its negative connotation during the early modern period. As the seventeenth century progressed, the term judicial was increasingly used as an equivalent to bad practices of astrology. As the marginalization of astrology in the learned circles progressed, the term judicial came to refer the practice of horoscopic and predictive astrology, now considered an outdated and foolish endeavour. Thus, it acquired its fully detrimental meaning by the very end of the seventeenth and throughout the eighteenth century, as will be detailed below.

The invention of natural astrology

Regarding the abovementioned second point, the anachronistic use of the distinction of natural versus judicial, it becomes more noticeable when reading earlier Christian authors. In their texts this pairing does not exist and natural appears as the antithesis of ‘superstitious’. Judicial was applied to any form of astrological practice, which by nature required a judgement. In turn, this could be either licit or illicit in the Church’s view. The concept of ‘natural astrology’ seems to originate in the early medieval Christian writings criticising astrology. One of the texts where this is clearly stated is in *The Etymologies*, by Isidore of Seville (c.560–636). He is quite strict regarding the practice of astrology, considering licit only the observation of the movement of the stars, that is, astronomy:

There is some difference between astronomy and astrology. Astronomy concerns itself with the turning of the heavens, the rising, setting, and motion of the stars, and where the constellations get their names. But astrology is partly natural, and partly superstitious. It is natural as long as it investigates the courses of the sun and the moon, or the specific positions of the stars according to the seasons; but it is a superstitious belief that the astrologers (*mathematicus*) follow when they practice augury by the stars, or when they associate the twelve signs of the zodiac with specific parts of the soul or body, or when they attempt to predict the nativities and characters of people by the motion of the stars.⁵⁶

Isidore divides astrology into ‘natural’ and ‘superstitious’. He relates the first to a very limited practice, perhaps time keeping and navigation. When he says that natural astrology investigates ‘the courses of the sun and the moon, or the specific positions of the stars according to the seasons’, it is unclear what he means exactly and if weather predictions would also be allowed. He is clearly against any type of prediction made through the movement of the stars, and it

⁵⁶ Isidore, *The Etymologies*, III.xxvii, “The difference between astronomy and astrology” (*De differentia astronomiae et astrologiae*) – Isidore, *The etymologies of Isidore of Seville*, ed. Stephen A Barney (Cambridge, UK; New York: Cambridge University Press, 2006).

seems that astrological-medical practices would be included since he condemns the association of ‘the twelve signs of the zodiac with specific parts of the soul or body’.⁵⁷ Thus, Isidore’s concept of ‘superstitious’ astrology includes judgements of all kinds. As with many early Christian writers, the pagan remnants contained in astrology and astronomy were not comfortable for Isidore and explain his almost complete rejection of astrology.⁵⁸ He states this quite clearly at the closing of the chapter on the constellations:

But whatever the type of superstition with which they have been named by men, the stars are nevertheless things that God created at the beginning of the world, and he set them in order that they might define the seasons by their particular motions.

Therefore, observations of the stars, or horoscopes, or other superstitions that attach themselves to the study of the stars, that is, for the sake of knowing the fates – these are undoubtedly contrary to our faith, and ought to be so completely ignored by Christians that it seems that they have not been written about.

But some people, enticed by the beauty and clarity of the constellations, have rushed headlong into error with respect to the stars, their minds blinded, so that they attempt to be able to foretell the results of things by means of harmful computations, which is called ‘astrology’ (*mathesis*).⁵⁹

The ideas of Isidore were passed on through Carolingian authors, such as Rabanus Maurus (780-856), and continued to be developed by other Christian writers such as Hugh of St. Victor (1096-1141), who offers a more detailed explanation on the concept:

‘Astronomy’ and ‘astrology’ differ in the former’s taking its name from the phrase ‘law of the stars’, while the latter takes it from the phrase ‘discourse concerning the stars’ – for *nomia* means law, and *logos*, discourse. It is astronomy, then, which treats the law of the stars and the revolution of the heaven, and which investigates the regions, orbits, courses, risings, and settings of stars, and why each bears the name assigned it; it is astrology, however, which considers the stars in their bearing upon birth, death, and all other events, and is only partly natural, and for the rest, superstitious; natural as it concerns the temper or ‘complexion’ of physical things, like health, illness, storm, calm, productivity, and unproductivity, which vary with the mutual alignments of the astral bodies; but superstitious as it concerns chance happenings or things subject to free choice. And it is the ‘mathematicians’ who traffic in the superstitious part.⁶⁰

Here he is more open to a wider range of applications of astrology. By referring that natural astrology studies ‘the temper or “complexion” of physical things’ and thus ‘health,

⁵⁷ Despite Isidore’s rejection of astrology, Thorndike shows that he is not entirely consistent on this matter throughout his works, since occasionally he appears to accept some kind of astral influence, see Thorndike, *History of Magic and Experimental Science. During the First Thirteenth Centuries of Our Era*, 1923, 1:632–34.

⁵⁸ For example, he also condemned the designation of the planets with the names of pagan gods: ‘The Romans have consecrated them with the names of their gods, that is, Jupiter, Saturn, Mars, Venus, and Mercury. Themselves deceived and wishing to deceive others into the worship of those who had granted them something in accordance with their desires, they would point out the stars in the sky, and say that this one was Jupiter’s and that one was Mercury’s, and this vain belief was born. The devil strengthened this erroneous belief, and Christ overturned it’, *The Etymologies*, III.lxxi.21.

⁵⁹ *The Etymologies*, III.lxxi.37-39.

⁶⁰ *Didascalicon*, book II, chapter 10, ‘Concerning the term *Astronomy*’ – Hugh of Saint Victor, *The Didascalicon of Hugh of St. Victor*, trans. Jerome Taylor, Records of Civilization: Sources and Studies, no. 64 (New York: Columbia University Press, 1961), 68.

illness, storm, calm, productivity, and unproductivity', he includes medicine, weather, the outcome of the year in terms of agricultural production, and most likely the use of nativities, even if partial. His main concern with 'superstitious' astrology has to do with the predictions that go against free-will and chance events, and as seen before with Augustine and Aquinas. This is a moral issue rather than one of practice. Similar arguments are used by Peter Abelard (1079-1142) in his *Expositio in Hexameron*. He makes a distinction between contingent events (*contingentia*) which include chance events and those resulting from human free-will or divine providence, and natural events (*naturalia*), such as weather and disease. Astrology could only predict natural, but not contingent events.⁶¹ This idea is then further reinforced by other authors, such as Thomas Aquinas, as seen before.

A comparative overview of the astrological and the religious discourse, clearly shows that the split-up of astrology into natural and superstitious is not part of its standard internal structure. It is an external division, imposed by Christian thought, to regulate certain practices that are uncomfortable or contrary to Christian doctrine. Steve Vanden Broecke states this quite well saying that 'the concept of "natural astrology" was developed to condemn astrological practices that presented moral challenges to early Christian religious authorities'. He further warns that, being a matter of the moral intent of the astrologer, these distinctions should be used with great caution.⁶² The instituting of this division in the Christian practice of astrology had both moral and practical implications. On the moral side this implied a restriction of astrological prediction to events that were considered the result of natural causes. Anything associated with chance and human free will (and of course divine intent) was considered outside the realm of astral influence and thus impossible to predict by means of astrology. On the other hand, in terms of astrological practice this implied a proscription of any methodologies that addressed the judgement or forecasting of these restricted topics. These included most judgements and predictions concerning individual births, almost every kind of interrogation, and many types of elections; all of them a greater part of the standard astrological practice.

Gradually, throughout centuries of Christian writings, the idea of a natural astrology gained weight as being the proper practice for the Christian astrologer. The concept of natural astrology was thus grafted into astrology by Christian authors as a regulatory measure for its practice. Anything that stood beyond these natural limits of astrology was considered as a

⁶¹ On this topic see, for example, Lynn Thorndike, *History of Magic and Experimental Science. During the First Thirteenth Centuries of Our Era*, vol. 2 (New York: Columbia University Press, 1923), 3–16.

⁶² Vanden Broecke, *The Limits of Influence*, 11–12.

superstitious practice and therefore as superstitious astrology. By the sixteenth century this idea was already embedded in the astrological discourse, in particular in the required apologetic introductions to any astrological text produced in a Christian context. In the interpretative sections this was not as prominent due to the technical nature of the content, but it was not uncommon for authors to make occasional admonishments as to the natural limits of certain astrological methodologies, and mainly in the texts addressing the most problematic facet of astrology, that of human births or nativities.

Revising the terms judicial, natural and superstitious

In this light, it becomes evident that the exact meaning of the terms judicial and natural needs to be carefully assessed within the historical contexts in which they are being discussed. Until the end of the seventeenth century judicial and natural were not viewed as opposites; they referred to different concepts and had a different use and implications. For a pre-modern author judicial astrology, that is astrology proper, was divided into natural and superstitious to indicate practices that were religiously sound or unsound. As it will become clear in the following chapters, most authors who advocate the practice of a natural astrology, suitable from both a scientific and religious point of view, call their texts and practices judicial astrology. This shows that in their minds judicial meant astrology proper. The adjective natural only emphasised good quality and licit astrological practices, while others considered illicit or unscientific were labelled superstitious. A good example is the highly influential introduction to astrology (*Isagoge in Iudiciariam Astrologiam*) by Giovanni Antonio Magini (1555–1617) where he presents the basic definitions for astrological practice printed as a supplement to his *Ephemerides coelestium motuum* (1582). In the subtitle of the introduction, he states that it ‘deals with the principles of Natural or Judiciary Astrology which mainly correspond to the astrological books of Ptolemy.’⁶³ Here Magini is clearly using the terms natural and judicial as synonyms. This is further explained in his definition of astrology which he divides into theoretical or speculative, which is astronomy, and practical, also ‘called prognosticatory, judicial or divinatory’, which is astrology proper:

⁶³ In quo agitur de Astrologiae Naturalis, seu Iudiciariae principiis ad Apotelesmaticos Ptolomaei libros maximè conducens. Giovanni Antonio Magini, *Ephemerides Coelestium Motuum. Io. Magini Patavini, Ad Annos XL Ab Anno Domini 1581 Usque Ad Annum 1620* (Venetia: Damiano Zenario, 1582), fol. 33r. For a general description of Magini’s text, although partial and dated, see Angus G. Clarke, ‘Giovanni Antonio Magini (1555-1617) and Late Renaissance Astrology’ (PhD Thesis, London, University of London, 1985), 55–68. Another relevant work on Magini is: Antonio Favaro, *Carteggio inedito di Ticone Brahe, Giovanni Keplero e di altri celebri astronomi e matematici dei secoli XVI. e XVII. con Giovanni Antonio Magini, tratto dall’Archivio Malvezzi de’ Medici in Bologna* (Bologna: N. Zanichelli, 1886).

[Astrology] is mainly divided in two principal parts: Theoretical or Speculative, and Practical or Operative. The theoretical part, informed by the demonstrations of Geometry and Arithmetic, explicates the movements, sizes, places, distances of all the heavenly bodies and the configurations they have among them, and also other phenomena that arise from very evident observations, and the moderns name properly Astronomy. The other that is called prognosticative, judicial or divinatory, is the one that, through the reasoning of physics and through experiences frequented repeated, scrutinises carefully the forces and the effects of the stars that by a sort of sympathy in the elements excite alterations in elemental bodies, and how from that the temperaments and inclinations in human bodies, and the mutations of the air, and similar things can be foreseen and prognosticated as so many effects of the celestial causes. This one is properly named by the moderns, ‘Astrology’, and it is subdivided into two parts, which are Introductory and experiential. The introductory part treats only the principles of the judgements which obviously are the natures and forces of now the planets, now the other heavenly bodies, and also of the parts of heaven and the mixtures and positions between them all, which Ptolemy treats copiously and eruditely in the first book of his *Quadripartitum*. Experiential or operative is the one that judges or foretells future events from those principles, and this one in turn is divided into four principal parts.⁶⁴

After presenting the various parts of astrology (which he divides into affairs of the world, astrometeorology, nativities, and elections), he states that ‘here are the true and legitimate parts of natural astrology’ and to which was added by the Chaldeans, Arabs, Jews, and others, many foolish things and superstitions without natural foundation, and therefore it came under suspicion by the Holy Church.⁶⁵ Therefore, in the mind of Magini and of other early modern astrologers, the distinction to be made was between approved judicial natural astrology, that is astrological judgements made according to natural principles, and the prohibited judicial superstitious astrology, which implied principles and practices outside what was considered be naturally possible. This was the chief definition for mathematicians and theologians.⁶⁶

⁶⁴ Diuiditur potissimum in duas partes principales nempe in Theoricam, seu Speculatricem, & Practicam, seu Operatricem. Theorica Geometricis, & Arithmetice demonstrationibus munita omnium stellarum motus, magnitudines, situs, distantias, & configurationes, quas inter se habent, ceteraque phenomena ab euentissimis obseruationibus exorta explicat, & hanc recentiores Astronomiam proprie vocitant. Altera quæ Prognosticatrix, Iudiciaria, seu Diuinatrix dicitur, est quæ physicis rationibus, & repetitis saepe experientijs vires, & effectiones stellarum, quibus sympathia quadam in elementis, elementatisque corporibus mutationes excitant [reading: excitantur], accuratè scrutatur, & quomodo inde temperamenta, & inclinationes in corporibus hominum, mutationes auræ, & similia, tanquàm effectus caelestium causarum preuideri, seu prognosticari possint. Haec proprium nomen Astrologiæ apud modernos sibi sortitur, & subdividitur in duas partes, quæ sunt Introductoria, & Exercitatoria. Introductoria versatur solum circa principia iudiciorum, quæ scilicet sint naturæ, vires, & qualitates tum planetarum, tum reliquorum syderum, nec non etiam partium coeli, & eorum omnium inter se commixtiones, & habitudines, de qua Claudius Ptolæmeus in primo sui Quadripartiti libro copiosè, & eruditè tractat. Exercitatoria, seu Operatoria est, quæ ex his principijs futuros rerum euentus iudicat, ac prænunciat, hec autem in quatuor primas partes partita est. – Magini, *Ephemerides Coelestium Motuum*, fol. 33v.

⁶⁵ Haec sunt veram, legitimemque Astrologiæ naturalis partes – Magini, fol. 34r. This type of phrasing becomes almost a standard feature in the introductions of astrology works, or when defining astrology in mathematical or astronomical books.

⁶⁶ This distinction is discussed in Rutkin, *Sapientia Astrologica*, xxviii, 8, 119–20; and also ‘Is Astrology a Type of Divination? Thomas Aquinas, the Index of Prohibited Books, and the Construction of a Legitimate Astrology in the Middle Ages and the Renaissance’, *International Journal of Divination and Prognostication* 1, no. 1 (2019): 36–74. In this regard, Lanuza Navarro has also noted that the assumed opposition between the terms ‘natural’ and ‘judicial’ becomes blurred or even fails when considering the seventeenth-century astrological practice as well as its definition by its practitioners and teachers; see Tayra Lanuza Navarro, ‘Astrology in Spanish Early Modern Institutions of Learning’, in *Beyond Borders: Fresh Perspectives in History of Science*, ed. Josep Simon et al. (Newcastle: Cambridge Scholars, 2008), 93.

However, this definition did not remain a universal standard. Among astronomers and astrologers such as Magini, the term judicial continued to uphold its original meaning, but it shifted in religious settings, generally adverse to astrological and divinatory practices. By the mid sixteenth century, theological texts began to equate the term natural to refer to astronomy and the natural influences of the planets, and the term judicial to include all interpretations that were seen as superstitious (some examples of this usage will be examined in Part Two.) This change to the natural-judicial binomial seems to derive from the phrasing of the two terms in the text of Rule IX of the Index, one of the first legal strictures regulating astrology, which will be addressed in detail below.

It is only at the end of the seventeenth century and in the first decades of the eighteenth century that the use of these terms shifts significantly and the distinction judicial versus natural, predominant in current historiography, sets in. With the rise of the Enlightenment the practices of astrology fell rapidly into disrepute. Following the programme that had been promoted by the Church, Enlightenment authors considered completely unacceptable and absurd any astrological practices concerning the description and prediction of human behaviour and fate. Unsurprisingly, these were filed under the term judicial astrology. However, this definition of judicial included also many astrological practices that had been part of astrology's core and previously considered as licit, but were now considered absurd. These include forecasting by means of astrological charts, as well as many of the principles presented in books such as Magini's introduction. Among these were the signs of the zodiac, the houses, and any concepts derived from them. The counterpoint to this modified concept of judicial was natural astrology, which was still considered as a viable scientific endeavour. Yet, as its counterpart, the concept was not exactly the same as that considered earlier by religious authorities. This was a sanitised version of the old natural astrology where most of its original and foundational elements had been deemed irrational and completely discarded. This division is clearly stated in the famous *Cyclopaedia* (1728) by Ephraim Chambers (1680–1740):

Astrology may be divided into two Branches, *Natural* and *Judiciary*. To the former belong the predicting of natural Effects; as, the Changes of *Weather, Winds, Storms, Hurricanes, Thunder, Floods, Earthquakes, &c.* (...) This Art properly belongs to Physiology, or Natural Philosophy. Its Foundation and Merits the Reader may gather from what we have said under the Articles, Air, Atmosphere, Weather, Aether, Fire, Light, Comet, Planet, Magnetism, Effluvia, &c. (...) *Judiciary*, or *Judicial Astrology*, which is what we commonly call *Astrology*, is that which pretends to foretell moral

Events; i.e. such as have a Dependence on the Will and Agency of Man; as if that were directed by the Stars.⁶⁷

He equates the natural branch to the study of the effects of the Sun, Moon and planets on climate, natural phenomena and medicine making it as part of the physical sciences rather than a facet of a tainted knowledge such as astrology. On the other hand, the judicial branch is clearly associated with a pretence to predict events dependant on the agency of man. This division is maintained and reinforced by the *Encyclopédie* (1751), which is largely a translation of the *Cyclopaedia*'s entry, but with a harsher tone. For example, it states of judicial astrology that 'We have been infected by this same superstition in the last centuries'.⁶⁸ Therefore, the common idea of judicial versus natural arises mainly from the eighteenth-century Enlightenment and it appears to be primarily used in that period and subsequent centuries carrying an attitude of reason versus superstition, rather than one of religious virtue.⁶⁹ However, the terms must be carefully used in historical studies and although a line can be drawn between texts written until the end of the eighteenth century and those after, this may vary depending on the author's stance or on the type of text in question (e.g. theological or astronomical). The next chapters will explore some of these different contexts.

The regulation of astrology

For a long period of the Christian Latin tradition of astrology these restrictions existed more on a level of theoretical discussion. Being a matter of moral posture, the boundary between natural and superstitious was not entirely rigid. The fact that key figures of Christian thought, like Thomas Aquinas or Albert the Great, recognized that astral influence could in some ways affect the human being provided a considerable degree of fluidity when it came to practice. Furthermore, the concept of natural causes could be interpreted to accommodate a number of astrological practices that would otherwise be considered superstitious. These strictures are not heavily present in most medieval Latin astrological texts. They only became a definite conditioning factor for the practice of astrology from the beginning of sixteenth century, when

⁶⁷ Ephraim Chambers, *Cyclopædia, or, An Universal Dictionary of Arts and Sciences; Containing the Definitions of the Terms, and Accounts of the Things Signify'd Thereby, in the Several Arts, Both Liberal and Mechanical, and the Several Sciences, Human and Divine: The Figures, Kinds, Properties, Productions, Preparations, and Uses, of Things Natural and Artificial; the Rise, Progress, and State of Things Ecclesiastical, Civil, Military, and Commercial: With the Several Systems, Sects, Opinions, &c among Philosophers, Divines, Mathematicians, Physicians, Antiquaries, Criticks, &c* (London: James and John Knapton et al., 1728), 162–64.

⁶⁸ Nous avons été infectés de la même superstition dans ces derniers siècles. In Denis Diderot and Jean le Rond d'Alembert, eds., *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers* (Paris: Briasson, David L'ainé, Le Breton, Durand, 1751), 780–83. Chambers, states 'The fame Superstition has prevailed in more modern Ages and Nations.'

⁶⁹ For an overview on Enlightenment and astrology, see Arno Rombouts, 'Enlightenment', in *Astrology through History: Interpreting the Stars from Ancient Mesopotamia to the Present*, ed. William E. Burns (ABC-CLIO, 2018), 111–13.

the discussions fuelled by works such as Pico's *Disputationes*, became frequent. Yet, it is only in the second half of the century that these restrictions became regulated by the Church, thus becoming a central determining factor in astrological practice.

The first noticeable action on the Church's regulation of astrological practices began with the Inquisition's list of forbidden books. This measure was consolidated by 1564 in the proceedings of the Council of Trent, expanded in 1586 by the issuing of the bull *Contra Astrologiae iudiciariae artem exercentes, et quaecumque alia divinationum genera, librosque legentes, vel tenentes* by Sixtus V, usually known as *Coeli et terrae*. This was latter reiterated in 1631 by the bull *Constitutio contra astrologos iudiciarios* issued by Urban VIII, also referred to as *Inscrutabilis iudicorum*.⁷⁰ The complex relationship between these documents and the motivations behind them have been discussed by several historians such as Ugo Baldini, Leen Spruit, Germana Ernst, and Barbara Mahlmann-Bauer.⁷¹ But, notwithstanding the intricacies surrounding them, these regulations and prohibitions had a tremendous impact on the contents of astrological books. Consequently, this affected the practice of astrology and had repercussions on its identity as an accepted knowledge. This will be the main focus of the present study. Following the Christian precepts on astrology discussed above, the Index and the bulls considered unsound many parts of astrology that were common practice until then. As a result, they gradually disappeared from the books published in Catholic countries and thus fell out of use, becoming an illicit practice. Additionally, they further promoted the ongoing revisionist movement within astrology to make it more natural and thus scientific – a movement that became increasingly present in late fifteenth-century astrology and was powerfully driven forward by the discussions surrounding Pico della Mirandola's critique. Many sixteenth-century authors continued this trend in the decades preceding the prohibitions, endorsing a revision of astrological methodologies and concepts with the purpose of attaining a more

⁷⁰ Sixtus V, 'Contra exercentes artem astrologiae iudiciariae', in *Magnum bullarium Romanum, a Pio Quarto usque ad Innocentium IX*, ed. Angelo Cherubini, vol. 2 (Lovain: sumptib. Philippi Borde, Laur. Arnaud, et Cl. Rigaud, 1655), 515–17; Urban VIII, *Constitutio contra astrologos iudiciarios* (Rome: Typographia Reu. Cam. Apost., 1631).

⁷¹ Baldini, 'The Roman Inquisition's Condemnation of Astrology: Antecedents, Reasons and Consequences'; Baldini and Spruit, *Catholic Church and Modern Science*; Germana Ernst, 'Astrology, Religion and Politics in Counter-Reformation Rome', in *Science, Culture, and Popular Belief in Renaissance Europe*, ed. Stephen Pumfrey, Paolo L. Rossi, and Maurice Slawinski (Manchester: Manchester University Press, 1991), 249–73; Barbara Mahlmann-Bauer, 'Die Bulle contra astrologiam iudiciariam von Sixtus V., das astrologische Schrifttum protestantischer Autoren und die Astrologiekritik der Jesuiten. Thesen über einen vermuteten Zusammenhang', in *Zukunfts Voraussagen in der Renaissance*, ed. Klaus Bergdolt, Walther Ludwig, and Daniel Schäfer, Wolfenbütteler Abhandlungen zur Renaissanceforschung, Bd. 23 (Wiesbaden: Harrassowitz, 2005), 143–222. See also Rutkin, 'Is Astrology a Type of Divination?'; Helena Avelar de Carvalho, 'Preludes to the Inquisition: Self-Censorship in Medieval Astrological Discourse', *Annals of Science* 77, no. 1 (2020): 10–25; Neil Tarrant, 'Reconstructing Thomist Astrology: Robert Bellarmine and the Papal Bull *Coeli et Terrae*', *Annals of Science* 77, no. 1 (2020): 26–49; Luís Campos Ribeiro, 'The Bounded Heavens: Defining the Limits of Astrological Practice in the Iberian Indices', *Annals of Science* 77, no. 1 (2020): 50–70.

scientific, natural, and pristine form of astrology.⁷² The added restrictions of the Church followed in great part this ongoing process, but were more severe. They incited a further purging of any astrological doctrines that could not be explained naturally and forced the removal of several doctrines of astrology that were considered to infringe upon human free will or dealt with contingent future events. This included, as will become clear, interrogations, many types of elections, and a substantial part of the doctrine of nativities.

Rule IX

These prohibitions have as their core the rules of the Inquisition concerning books of astrology, in particular Rule IX of the text concerning forbidden books drawn up at the Council of Trent:

All books and writings on geomancy, hydromancy, aeromancy, pyromancy, onomancy, chiromancy, necromancy, or those in which are contained the drawing of lots, sorceries, auguries, auspices, incantations of the magic art, are entirely rejected. But let the bishops observe carefully that books, treatises, indices on judicial astrology be not read or kept, which dare to affirm as certain that something is to happen regarding future contingents, or chance events, or those actions dependent on the human will. However, judgements and natural observations which are written for the purpose of aiding navigation, agriculture, or the medical art, are allowed.⁷³

In Rule IX, astrology is grouped with several forms of divination and magic, but its identity as a scientific knowledge sets it apart from all other practices. Thus, the discussion of astrology's regulations is more complex and further clarifications are offered. While any writing on any form of divination or magic is completely forbidden, astrology is only forbidden to a certain extent. The rule only discards astrological judgements which address contingent future events, chance events, and actions determined by human free will; all other judgements are allowed. Although, as is stated, the rule still leaves some room for manoeuvre to the censor – who only had to follow the general guidelines – it becomes problematic for many of the common applications of astrology. As mentioned before, the strictures of the rule regarding free will and contingent events eliminate a great part of the judgements of nativities and elections and obliterate almost completely the use of interrogations. The latter, more than any of the other parts of astrology, easily violates the precepts of free will, chance events, and contingent

⁷² On this complex process of revision of astrology see Faracovi, 'The Return to Ptolemy', 87–98; Hasse, 'Astrology: Ptolemy against the Arabs', 248–92.

⁷³ Libri omnes, & scripta, Geomantiae, Hydromantiae, Aeromantiae, Pyromantiae, Onomantiae, Chiromantiae, Necromantiae, siue in quibus continentur sortilegia, veneficia, auguria, auspicia, incantationes, artis magicae, prorsus reijciuntur. Episcopi verò diligenter prouideant, ne Astrologiae iudicariae libri, tractatus, indices, legantur, vel habeantur, qui de futuris contingentibus successibus, fortuitisue casibus, aut ijs actionibus, quae ab humana voluntate pendent, certò aliquid eventurum affirmare audeant. Permittuntur autem iudicia, & naturales obseruationes, quae nauigationis, agriculturae, siue medicae artis iuuandae gratia conscripta sunt. Tomaso Antonio Degola, ed., *Index Librorum Prohibitorum juxta exemplar Romanum jussu Sanctissimi Domini Nostri [Gregory XVI.] editum anno 1835. Accesserunt suis locis nomina eorum qui usque ad hanc diem damnati fuere.* (Malines: Hanicq, 1838), xii.

futures. In interrogations the client asks the astrologer things such as: if a given event will occur and when; where something or someone is; or if something is good or bad. All of these questions depend on either the person's or someone else's will or are essentially contingent events, thus, not admissible to be predicted in the view of the Church. Note that the phrasing of the text makes a distinction between books of judicial astrology 'which dare to affirm as certain' contingent and chance events, actions dependent on free will, and natural astrological 'observations'. Although the superstitious adjective is implied, it is not used. As referred to above, this is likely to have promoted the shift from the classification of natural versus superstitious to that of natural versus judicial found in late sixteenth and seventeenth-century theological texts.⁷⁴

Sixtus' bull

By 1586, the issuing of the bull *Coeli et Terrae* by Sixtus V, brought more complexity to the matter and above all it represented a definitive move by the Church on the practice of astrology (see Appendix I for the complete text). The bull begins with a lengthy discourse on the dangers and sinful ways of divination, magic and the 'vain scrutiny of future things.' It is considered a vanity and a deception by demons, and highly condemned by Christian doctrine. At first the text seems to be referring to sorcery, witchcraft, magical practices, and related forms of divination; however, at the end of this section Sixtus V turns to the astrologers as those who most of all gravely offend God, and those who bringing themselves into error also lead others into error:

Such people, above all, are the Astrologers, once called *Mathematici*, *Genethliaci* and *Planetarij*, who – professing the vain and false science of the stars and constellations, and with incredible daring, seek to predict the order of the divine disposition, that in its due time shall be revealed – measure the nativities and conceptions of men by the movements and courses of the stars and constellations, and judge future things, as well as hidden things of present and past times; and through the nativity of children and their day of birth, or by any other consideration and the most vane observations and recordings of times and moments, presume recklessly to foretell, judge and pronounce about the status, condition, course of life, honours, wealth, progeny, health, death, travels, disputes, enmities, prisons, casualties and various changes and other prosperous and adverse cases and events, not without great danger of error and inaccuracy.⁷⁵

⁷⁴ This is discussed in Rutkin, 'Is Astrology a Type of Divination?', where he explores this shift. Yet it must be noted that, although blurred, the distinction between an illicit judicial astrology and a licit one is still present in the text. In other iterations of Rule IX this is expressed more clearly, as is the case of some of its versions published in the Iberian Indexes, see Ribeiro, 'The Bounded Heavens'.

⁷⁵ Tales inprimis sunt Astrologi, olim Mathematici, Genethliaci & Planetarij vocati, qui vanam falsámque siderum & astrorum scientiam profitentes, diuinaeque dispositionis ordinationem, suo tempore reuelandam, praeuenire audacissimè satagentes, hominum natiuitates seu genituras ex moto siderum & astrorum curso metiuntur, ac indicant futura, siue etiam praesentia, & praeterita occulta, atque ex puerorum ortu & natali die, siue quavis aliâ temporum & momentorum vaníssima

In essence, the bull reaffirms the Church's view on astrology and its forecasting capabilities, continuing to highlight the same set of anti-astrological principles that Augustine and others had put forward. In practice the text consolidated Rule IX regarding astrology: it could only be applied to the fields of agriculture, navigation, and medicine, and as always, no judgement or prediction could infringe on human free will, contingent, or chance events. However, on this last point of paramount importance the bull adds that these judgements or predictions cannot be made even if they are not stated as certainties:

... by this constitution that shall be forever valid, we establish and command by virtue of our apostolic authority that against the Astrologers, *Mathematici*, and any others who from now on practice the aforementioned art (except in regard to agriculture, navigation or medicine), or cast judgments and nativities of men in which they dare to state something will happen, regarding future occurrences, successes and chance happenings, or acts dependent upon human will – even if they say or protest that such a thing is not stated as a certainty ...⁷⁶

This clause takes the prohibitions of the Index further by completely restricting all predictions not based on natural causes and makes illicit even a simple statement of possibility. While this was not of particularly relevance for such things as weather prediction, it was disastrous for the astrology of nativities. This meant that all judgements of human births became restricted to simple natural conditions studied in the context of medicine and that all conjectures made by the astrologer had to be firmly based on these natural principles; any careless supposition as to the native's actions or future behaviour could put the astrologer at risk of infringing the law. Traditionally, astrology made judgements on all manner of human affairs: on the person's actions, on marriage, future employment, honours, friends, and children. But under the new rules, most, if not all of these topics were not allowed since they would either impinge on free will or predict contingent events. For example, if an astrologer were to make a statement that someone's children tended to be reckless and that this would affect this person's social status, it would be considered a severe infringement. Any future actions by the native's offspring should be determined by their own individual will and were thus unable to be predicted lawfully by astrology. By the new rules, this was not allowed even if it was merely presented as a possibility. Therefore, by restricting even an astrologically educated supposition, the study of

observatione & notatione, de uniuscuiusque hominis statu, conditione, vita cursu, honoribus, diuitiis, sobole, salute, morte, itineribus, certaminibus, inimiciis, carceribus, cadibus, variis discriminibus, aliisque prosperis & aduersis casibus & euentibus praecognoscere, iudicare, & affirmare temerè praesumunt, non sine magno periculo erroris & infidelitatis.

⁷⁶ ...hac perpetuò ualitura constitutione, Apostolicâ auctoritate statuimus, atque mandamus, ut tam contra Astrologos, Mathematicos, & alios quoscumque, dictae Astrologiae iudiciariae artem, praeter quàm circa agriculturam, nauigationem, & rem Medicam, in posterum exercentes, aut facientes iudicia, & natiuitates hominum, quibus de futuris contingentibus, successibus fortuitisque casibus, aut actionibus ex humanâ uoluntate pendentibus aliquid euenturum affirmare audent, etiamsi id se non certò affirmare asserant, aut protestentur...

nativities was reduced to a very simple judgement where nothing could be said beyond physical appearance, health, and a carefully crafted and constrained interpretation of the native's traits based only on the natural temperament: a rather dull narrative when compared with the complete range of traditional judgements. Another problematic limitation was that of the general condition of the world. In astrological tradition this implied, beyond the state of the weather, the forecast of political affairs. However, once more this transgressed in the matter of free will and contingency, constraining many of the usual predictions conveyed by almanacs, and limiting to a level of near uselessness the advice a court astrologer could provide to his patron on political matters. The only possible kind of prediction on human actions, both individual and collective, would be those conforming to the principle of natural inclinations as discussed by Thomas Aquinas who stated that certain bodily tendencies or passions emerge that could incline the person to specific behaviours as long as the individual will, which was outside of these influences, did not stop them. This safe zone, which carried the weight of a major Christian authority, allowed the astrologer to make certain behavioural predictions, based on the person's temperament which was a material, bodily trait and thus subject to natural astrological study. From this principle, the astrologer could predict as natural – and thus lawful – a variety of individual traits such as propensity to certain vocations, tendency towards recklessness, or to be excessively zealous, among many others. Yet, despite its key role as a doctrine that allowed lawful astrological predictions of human behaviour, the principle of natural inclinations is not specifically mentioned either in Trent's Rule IX or in the bull. These only appear in later versions of the index as an additional explanation of the limits of astrology when applied to human births.⁷⁷

All that was allowed of astrological interpretation and forecast had to be juggled within the three areas stated by the bull: agriculture, navigation and medicine. It is never clear what exactly this means, since no specific practices are defined by the text. The main targets of these prohibitions are undoubtedly the judgements of nativities and the interrogations under which most of the predictions infringing on free will and contingency could be made. Thus, they could only be practiced within the context of medicine. Here only the individual natural bodily tendencies would be explored in the nativities, and only a very specialised form of interrogation or event chart, called decumbiture was applied to forecast the development of a disease.⁷⁸ Within this field some elections on medical operations would also be permissible. Under the

⁷⁷ For a discussion of these additions in the Iberian Indices see Ribeiro, 'The Bounded Heavens'.

⁷⁸ A decumbiture was an astrological chart erected for the time the patient would feel the first clear symptoms of a disease or when the fact was presented to the doctor (this practice is discussed in more detail in Part Three).

umbrella of agriculture would fall above all else the study of larger events, the revolutions of the years of the world, where the weather and its effects on crops and harvests could be studied through seasonal ingresses, conjunctions, eclipses and lunations. In this context would also be included elections regarding the appropriate time for husbandry tasks. The field of navigation is perhaps the oddest item in this list and the least commented upon in astrological texts. It is never completely clear if the bull means navigation itself, since it was in many ways a practical expression of astronomy as were the astrological judgements, or if it refers specifically to the application of astrology to navigation. The latter, being more likely, entailed the election of astrological propitious times to set sail and initiate a journey, and perhaps weather forecast.⁷⁹

These regulations were not accepted uncritically even amidst the Church's scholars and several requests for clarifications were requested in the years following the issuing of the bull. Ugo Baldini has also demonstrated that within the Church there were some who advocated ignoring the bull in terms of prohibition.⁸⁰ In view of this ongoing discussion, in 1592 the new pope, Clement VIII, ordered that the prohibition of astrological books should firstly follow Rule IX and then take the bull into consideration. This debate mirrored the difficulty in applying the bull's strictures. If these were to be followed with rigour, many books considered valued and standard reference works would be forbidden, especially those by the earlier Greek, Arabic and Latin authors. Furthermore, many renowned books of astronomy would be discredited in view of their astrological section. This led to a series of amendments and additional comments to Rule IX in the published indices.⁸¹ Another issue was that the boundary between natural and superstitious astrology was not always entirely clear and, as seen above, depended on the authors philosophical stand on how influence operated.⁸²

The reasons for the appearance of these regulations at such a late date are not completely clear. They are undoubtedly a direct consequence of the Counter Reformation and of the Council of Trent and following stricter religious policies. Robin Bruce Barnes argues that

⁷⁹ One example of these specific fields can be found in two *Supplementa isagogicarum* included in the 1608 edition of Magini's Ephemerides: *Astrological observations and precepts concerning agriculture* (Astrologicae circa agriculturam observationes & praecepta) and *Astrological observations and rules for the art of navigation* (Astrologica praecepta et observationes ad navigatoriam artem) – Giovanni Antonio Magini, *Ephemerides coelestium motuum Io. Antonii Magini Patavini, mathematicarum in Almobononiensi Gymnasio Professoris, ab anno Domini 1608 usque ad annum 1630 iuxta Copernici observationes accuratissimi supputatarum, ad longitudinem inclytae Venetiarum urbis*. (Frankfurt: Wolffgangi Richter, Joan. Theob. Schönwetteti, 1608), 14–18.

⁸⁰ See Baldini, 'The Roman Inquisition's Condemnation of Astrology: Antecedents, Reasons and Consequences', 94; and Baldini and Spruit, *Catholic Church and Modern Science*, 1:440–69 for a study and an extensive list of documents. The reactions to the bull are discussed in pages 457 to 467.

⁸¹ For some examples of these additions see Ribeiro, 'The Bounded Heavens', 54–63.

⁸² From the point of view of theology and natural philosophy stricter or more lenient postures could be taken. For a discussion on this see Tarrant, 'Reconstructing Thomist Astrology'.

astrology was caught in the religious war between Lutherans, generally in favour of astrology, and Catholicism, typically against astrology.⁸³ The Catholic strictures would have been a reaction against the use of astrology by Lutheran preachers in their evangelical discourse. He places the Jesuits in the forefront of this battle against astrology, as is also suggested by Baldini.⁸⁴ As evidence for their arguments they adduce: the removal of Astrology from the Jesuit *Ratio Studiorum* and the various anti-astrological texts published by Jesuit authors. This will be addressed in detail in Part Two.

Urban VIII's bull

By 1631, any expectation of a change of the strictures against astrological practice had to be abandoned with the issuing of the *Inscrutabilis iudiciorum* by Urban VIII. The circumstances surrounding the appearance of the bull are notorious and have been discussed by several authors.⁸⁵ The bull appears to result from a political move by the pope to address the consequences of several predictions made of his imminent death, and of a sensitive event that became public. By 1626 a series of predictions on the imminent demise of Urban VIII were made by Abbott Orazio Morandi of Santa Prassede and his circle of correspondents. These place the pope's death between the years of 1628 and 1630, triggered by a series of eclipses. These predictions circulated among the ecclesiastical and political circles, and discussions began on who would be the new pope. Several Cardinals started their journey to Rome in case a new conclave would be necessary. In 1628 with the rising circulation of these predictions and concerned by the approaching of the eclipses that would signify his death, Urban VIII called for the services of the Dominican friar Tommaso Campanella (1568–1639) to assist him. Apparently, Campanella prepared a ritual of natural magic that was performed at the Vatican to deflect the maleficent influences of the eclipses. This was to be kept secret, but an account of a similar ceremony was published against the author's will in Campanella's *Astrologicorum libri VII* (1630) as the seventh book, *De Fato siderali vitando*.⁸⁶ It has been assumed that this

⁸³ Barnes, *Astrology and Reformation*, 172–84.

⁸⁴ Barnes, 181–84; Baldini, 'The Roman Inquisition's Condemnation of Astrology: Antecedents, Reasons and Consequences', 103–6.

⁸⁵ These are discussed in Daniel Pickering Walker, 'Campanella's Magic and Urban VIII', in *Spiritual and Demonic Magic: From Ficino to Campanella* (University Park, PA: Penn State Press, 2000), 205–12; Peter Rietbergen, 'Urban VIII between White Magic and Black Magic, or Holy and Unholy Power', in *Power and Religion in Baroque Rome: Barberini Cultural Policies* (Tournhout: Brill, 2006), 336–75; Forshaw, 'Astrology, Ritual and Revolution in the Works of Tommaso Campanella'; for a detailed study see Brendan Dooley, *Morandi's Last Prophecy and the End of Renaissance Politics* (Princeton: Princeton University Press, 2002).

⁸⁶ Tommaso Campanella, *Astrologicorum Libri VII. In quibus Astrologia omni superstitione arabum, & iudaeorum eliminata physiologicè tractatur, secundum S. Scripturas, & doctrinam S. Thomae, & Alberti, & summorum theologorum; Ita ut absque suspicione mala in ecclesia dei multa cum utilitate legi possint* (Frankfurt: Godefridus Tampachius, 1630).

was a move from the head of the Dominican Order to hinder the proximity that Campanella had to the pope.⁸⁷ In the wake of the political agitation caused by the astrological predictions Urban VIII issued the second anti-astrological bull. The text did not add anything substantially new, reiterating the strictures enforced by the first bull, however it extended the prohibitions to include also any predictions concerning statesmen, the state of Church, the Holy See, and the life and death of the pope and any of his relatives until the third degree.

This type of prohibition targeted the public predictions and their political and social impact. This was not a new phenomenon as the above-mentioned case of the 1524 deluge exemplifies, but now this type of forecast (in this case focused on the pope and the church) began to be more attentively regulated. A few years earlier, in 1628, such a type of prediction had been forbidden in France by Louis XIII to safeguard the public welfare.⁸⁸ This also reveals another type of concern behind these prohibitions and censures: the effect that astrological prediction had in the popular mind and consequently in politics. This type of forecast was mainly conveyed through the almanacs, and consequently the main focus of censorship appears to have been centred in this genre of publications. Thus, it is common for almanacs and ephemerides to be heavily censored, while in larger books of astrological instruction the censor would just call attention to the forbidden or less acceptable contents of certain chapters. It was expected that the reader of such books would be more educated and able to make the proper distinctions. In some instances, the censors state that some associations of the planets and signs present in the almanacs would create confusion in the uneducated reader between a mere planetary influence and an actual conduct bestowed by the planet, e.g. statements that someone born under a particular sign would be prone to a given type of bad behaviour. Another noticeable item of censure is on judgements concerning wars, death of kings, and similar events, which could cause political turmoil, such as the very example of Urban VIII.⁸⁹ While it is clear that many of the admonishments put forward by the Church are a matter of religious doctrine, they also reveal an ethical concern that simplistic astrological descriptions could lead to misjudgements, either towards individuals born under certain astrological configurations, or regarding unrealistic personal or political expectations. Thus, there was also an underlying

⁸⁷ Dooley, *Morandi's Last Prophecy and the End of Renaissance Politics*, 164.

⁸⁸ On the topic of astrology and politics see: Burns, 'Astrology and Politics in Seventeenth-Century England'; Azzolini, *The Duke and the Stars*; Steven Vanden Broecke, 'Astrology and Politics', in *A Companion to Astrology in the Renaissance*, ed. Brendan Maurice Dooley, Brill's Companions to the Christian Tradition 49 (Leiden: Brill, 2014); 'Self-Governance and the Body Politic in Renaissance Annual Prognostications', in *From Masha' Allah to Kepler: Theory and Practice in Medieval and Renaissance Astrology*, ed. Charles Burnett and Dorian Gieseler Greenbaum (Ceredigion, Wales: Sophia Centre Press, 2015), 491–512; Darin Hayton, *The Crown and the Cosmos: Astrology and the Politics of Maximilian I* (Pittsburgh: University of Pittsburgh Press, 2015).

⁸⁹ Ribeiro, 'The Bounded Heavens'.

concern towards a proper use of astrological knowledge so that it was not the cause of misinformation with ill consequences falling on the uneducated consumer.

The apologetic discourse

Most astrological books provided an opening text introducing the discipline. They were a common feature in the larger compendia and had the function of demonstrating the validity of astrology.⁹⁰ In non-Christian contexts and in Latin literature before the Index and the bull, they mainly addressed the placement of astrology in the context of science and in the accepted cosmology, discussing some of the common misunderstandings or criticisms. In the more extensive apologies, the authors took their time to explain the value of astrology, its sound principles as a science, and its usefulness to the human life. An example of this discourse can be seen in the influential Albumasar's *Great Introduction* or Guido Bonatti's *Book of Astronomy*, where the authors dedicate the first part to an extensive discussion of these matters.⁹¹ By the end of the fifteenth century and especially following the publication of Pico's *Disputationes* the apologetic discourse reinforced astrology's lawfulness as a proper science, and many include a reference to, or even a summarised refutation of Pico's main arguments. In Christian contexts the admonishments regarding the limits of astrology before the Church's doctrine were always present, but they did not have the level of constricting power that they acquired by the second half of the sixteenth century. With the establishment of the Index's rules and the issuing of the first bull, any astrological printed text, from a simple almanac to a complete manual on astrology needed to be preceded by some type of apologia, otherwise it might not obtain the permissions to be printed and be subject to harsher scrutiny. These could vary in length, from a paragraph to a text of several pages, but most importantly they all stated that none of the astrology discussed in the text would infringe on free will or chance events and thus abided by the Church's principles. In this manner, apologetic discourse also equated the scientific stand of the astrology conveyed in the book with its religious lawfulness: by being based on natural laws it would certainly not infringe on the doctrine of the Church. Thus, astrology was valid in Christian eyes inasmuch as it was scientific. As a consequence, astrology

⁹⁰ For a study on this type of discourse see Teri Gee, 'Strategies of Defending Astrology: A Continuing Tradition' (PhD thesis, Toronto, University of Toronto, 2012), <https://tspace.library.utoronto.ca/handle/1807/34009>.

⁹¹ Abū Ma'shar, *The Great Introduction to Astrology*, ed. Keiji Yamamoto and Charles Burnett, vol. 1 (Leiden: Brill, 2019), 42–175; Guido Bonatti, *The Book of Astronomy*, trans. Benjamin N. Dykes, vol. 1 (Golden Valley: Cazimi Press, 2007), 1–26.

became increasingly scientific, that is, it emulated as much as it could the very mathematical sciences among which it was positioned in the early modern map of the knowledge.



Chapter 3. The mathematization of astrology

The third topic in this outline of early modern astrology is the intimate connection between the changes in early modern astrological thinking and the development in mathematics observed in this period. A parallel can be established between the steadfast growth of the mathematical disciplines in early modern science and the necessity to anchor astrology in solid scientific foundations. This need, as seen above, was driven on the one hand by the criticisms such as that of Pico della Mirandola, and on the other by the religious restrictions of the second half of the sixteenth century. In the pre-modern map of knowledge astrology was implicitly connected to mathematics and to astronomy. At a foundational level the doctrine of astrology was mathematical in essence because it was based in the mathematical calculation of planetary positions in celestial and terrestrial reference systems. In many Latin texts the astrologers are commonly referred to as mathematicians (*mathematici*), as exemplified above in Isidore. This connection was rooted in the astronomical and computational skills indispensable to follow and predict the movement of the celestial bodies. Without them there could be no data to be interpreted. Furthermore, the very structure of astrology's interpretative system was derived from planetary movements, and it must once more be highlighted that, for the pre-modern mind, computation (astronomy) and interpretation (astrology) were two facets of the same knowledge. Astrologers who applied mathematics to their astrological observations were highly praised, and the perceived accuracy of their practice was correlated to their mathematical knowledge. This is observable in the early Greek and Roman, where there is a distinction between general calculation and computation to the degree and throughout the Arabic and Latin traditions. For example, Ibn Ishaq al-Tunisi (c. 1220) states in his *Zij* that the simple calculation of the ecliptic house division for astrological charts could be used for 'ordinary purposes'.⁹² However, if precision was needed, that is, when dealing with important matters such as conjunctions, revolutions of the years of the world, and nativities, then the more complex mathematical

⁹² The houses are twelve divisions of the heavens made from the horizon and most often the meridian of a specific location. They are the foundation of an astrological chart. The majority of astrological judgements are based on the position of the planets and the signs in the houses. Several methods of division were proposed, generating an ongoing debate throughout the history of astrological practice. For a discussion on the history and computation of the different house division methods see the foundation study, North, *Horoscopes and History*; and subsequent studies, such as Edward S. Kennedy, 'The Astrological Houses as Defined by Medieval Islamic Astronomers', in *From Baghdad to Barcelona: Studies in the Islamic Exact Sciences in Honour of Prof. Juan Vernet*, ed. Josep Casulleras and Julio Samsó, vol. 2, 2 vols, Anuari de Filologia (Universitat de Barcelona), 19 (1996), B-2 (Barcelona: Instituto 'Millás Vallicrosa' de Historia de la Ciencia Árabe, 1996), 535–78; Josep Casulleras, 'Métodos Para Determinar Las Casas Del Horóscopo En La Astrología', *Al-Qanṭara* 30, no. 1 (2009): 41–67; or *La Astrología de Los Matemáticos: La Matemática Aplicada a La Astrología a Través de La Obra de Ibn Muṭāḍ de Jaén* (Barcelona: Universitat de Barcelona, 2010), 62–77.

division known today as the Standard Method (based on the ascensional movement of the rising ecliptic degree) should be used.⁹³

By the end of the Middle Ages the mathematization of science was already underway and from the fifteenth century onwards there was a noticeable rise in the role of mathematics as a tool to describe the natural world. The sixteenth and seventeenth century witnessed an unprecedented increase in the use of mathematics as the language to describe the world which gradually replaced the long-standing argumentation of Natural Philosophy. This established a new form of scientific thinking where mathematical demonstration acquired a central role.⁹⁴ Astrology, included in the mathematical sciences, was also affected by this shift. The result was a significant mathematization of the practice of astrology. This was evident in astrological computation which involved the calculation of the various types of astrological charts which profited greatly from the new approaches and increased levels of precision. Examples of this are the increased ability to accurately calculate the exact time of the entrances of the Sun in the equinoctial and solstitial signs or the precise computation of the time, visibility and magnitude of eclipses, both of great importance for the practice of astrometeorology. Another facet of this process was evidence by the mathematical definitions of the celestial houses, whose method of division had always been in dispute. From the fifteenth century onwards the choice of methodology for the division of the houses inclined towards those which presented more astronomical and mathematical complexity: the Prime Vertical Division, attributed to Campano da Novara (also, Campanus of Novara), later replaced by the Rational Method promoted by Regiomontanus, and by the end of seventeenth century supplanted by the Hour Line Method promoted by Placido de Titi, later known by his Latinised name, Placidus. An additional example is the method of prediction called directions. This measured the ascensional movement of the planets from the time of birth to forecast events in the native's life. Being a method with an elaborate computation, it was in the early modern period exalted above all other systems, and its practice was further facilitated by the publication of tables and by the appearance of new

⁹³ Kennedy, 'The Astrological Houses', 554–55. The ecliptic house division could be obtained simply by trisecting the distance between the rising and culminating ecliptic degree, a simple mathematical division, while the Standard Method required the use of the equatorial right and oblique ascensions, for which tables or additional mathematical knowledge would be required.

⁹⁴ There is a vast historiography on the mathematization of science. For a general overview see for example, John Emery Murdoch and Edward Grant, eds., *Mathematics and Its Applications to Science and Natural Philosophy in the Middle Ages: Essays in Honor of Marshall Clagett* (Cambridge; New York: Cambridge University Press, 1987); R. Hooykaas, 'The Rise of Modern Science: When and Why?', *The British Journal for the History of Science* 20, no. 4 (1987): 453–73; Alfred W. Crosby, *The Measure of Reality: Quantification and Western Society, 1250–1600* (Cambridge; New York: Cambridge University Press, 1997); Sophie Roux, 'Forms of Mathematization (14th–17th Centuries)', *Early Science and Medicine* 15, no. 4–5 (2010): 319–37; Geoffrey Gorham et al., eds., *The Language of Nature: Reassessing the Mathematization of Natural Philosophy in the Seventeenth Century*, Minnesota Studies in the Philosophy of Science, volume 20 (Minneapolis: University of Minnesota Press, 2016).

methods of calculation. Placido de Titi's *Tabulae primi mobilis*, published in 1657, represents a culminating point in the early modern discussion of directions and it became, as the house division he proposed, a standard in the following centuries.⁹⁵ In this text Placido also recommends the replacement of the more symbolic traditional systems of prediction, for others more that are astronomically founded.⁹⁶ The mathematical complexity of these techniques was equated with scientific precision and accurate astrological judgements, granting nobility to the practice of astrology. Thus, the exaltation of mathematical accuracy became a point of honour in astrological books.

This concern for mathematical precision in astrology extended beyond the issues of calculation; it was also applied to the interpretation of planetary configurations, commonly known as judgements. These, as mentioned above, were to a large degree an extension of the mathematics inherent to planetary movement. Almost every component of astrology's interpretative doctrine had its basis in the intricacies of planetary motion. For example, many of the timing systems in astrological interpretation were derived from the planetary geocentric movements. The years of the planets used in life span calculations were related to planetary sidereal and synodical cycles. Venus, for example, was consistently attributed the timing of eight years, because that is the approximate value of its synodic cycle; likewise, Saturn was attributed thirty years and Jupiter twelve years since these correspond to their sidereal cycles. These in turn served as the basis for many other timing techniques, such as *Firdaria*, the Years of Man, and many more. Other fundamental structures such as the zodiac and the signs, as well as their astrological qualities, were obviously derived from the solar seasonal cycle, while the astrological houses were devised from the daily motion of all the celestial bodies, from east to west. The relationship of the planets to the signs, expressed in concepts such as the system of planetary rulers or domiciles, also related to the geocentric sequence of the planets: from the fastest, the Moon, to the slowest, Saturn. Also, planetary strength and signification was determined according to their astronomical movements such as rising and setting, visibility and luminosity, as well as altitude and speed.

By the end of the fifteenth century and more noticeably in the sixteenth century, all these parameters of interpretation became highly mathematised, by equating them with numerical

⁹⁵ Placido de Titi, *Tabulae Primi Mobilis Cum Thesibus Ad Theorice & Canonibus Ad Praxim Additis in Rerum Demonstrationem, et Supputationum Exemplum Triginta Clarissimorum Natalium Thematis* (Patavia: P. Frambotti, 1657); also edited in English: Placido de Titi, *Primum Mobile*, ed. John Cooper (London: Davis and Dickson, 1814).

⁹⁶ Titi, *Tabulae Primi Mobilis*, 52–55. He suggests replacing the commonly used method of Profections (in which the significators are moved one sign per year) with a better and natural method he names Progressions (which moves the significators according to the monthly repetition of the angular distance of Sun and Moon at the time of birth).

values. This type of measurement was not completely new to astrology. Since the eighth century there is evidence of a mathematical scoring used in certain interpretations, particularly those concerning the assessment of planetary strength. The most noticeable is the attribution of a degree of power to each of the essential dignities or of weakness to the corresponding debilities. Al-Biruni at the end of the ninth century, discusses this in his *Instruction in the Elements of the Art of Astrology*, already noting differences between the ancient and the moderns in this regard.⁹⁷ Throughout the late medieval tradition there is a general consensus to attribute five points to the dignity of domicile, four points to the exaltation, three for triplicity, two for term and one for face.⁹⁸ However, in the early modern period this form of mathematical measuring was developed into a systematic quantification of planetary strength well beyond the usual counting of essential dignities. This gave rise to increasing intricate and complex systems of scoring, where each and every condition of the planets was considered. These new systems included house position, planetary speed, visibility, aspects and a number of other conditions, known commonly in astronomical literature as the accidents or passions of the planets. This was undoubtedly an attempt to translate the astrological condition of a planet into a mathematical formula, thus giving precision, uniformity and accuracy to astrological judgements. This type of measuring extended as well to other methods of astrological judgement, such as the assessment of the individual's temperament – an important factor for medical astrology and for the interpretation of individual inclinations. This was made by means of a series of tabled considerations, which weighed all temperamental contributions in the chart. All of this planetary and astrological accounting would provide a scientific and mathematical support for the practice of astrology. This practice had several consequences.

First, there was never complete uniformity in the scoring systems used; either on the number of parameters to consider, or on the value attributed to them. Therefore, different authors would reach different strengths for the same planet depending on what system they were using. This is sometimes alluded to in discussions concerning the so-called ruler of the year, common in almanacs. This was used for yearly predictions, where the strongest planet in the chart of the Sun's ingress in Aries would become the most influential planet in that period. Since different authors of almanacs used different methods of scoring, they would name different planets as ruler of the year. A factor that became one of the arguments used by the critics of astrology.

⁹⁷ Al-Biruni, *Instruction* 494 - Bīrūnī, *The Book of Instruction in the Elements of the Art of Astrology*, 306.

⁹⁸ An early alternative system, discussed by Al-Biruni, attributes three points to the dignity of term and two to triplicity.

Secondly, many of these elements of astrological doctrine being interpretative by nature were perhaps not entirely quantifiable, at least not in strict mathematical terms. The elements of astrology that were difficult to translate into numbers and posed a difficulty to the more mathematically strict astrologers, were gradually placed to one side, or even discarded. Finally, there was a noticeable loss of the non-quantifiable aspects of astrology. As quality gave place to quantity, the more fluid facets of interpretation were clouded by an excess of mathematical quantification.

FORTITVDINES	DEBILITATES
planetarum.	planetarum.
5 Domus prima uel decima.	5 Domus duodecima.
4 Domus septima uel quarta.	4 Domus octaua.
2 Domus nona.	3 Domus sexta.
3 Domus undecima uel quinta	2 Domus secunda.
1 Domus tertia.	2 Domus septima à domo planetæ, id est detrimentum.
5 Domicilium.	5 Domus septima ab exaltatione, id est casus.
4 Exaltatio.	6 Combustio planetæ à Sole.
3 Triplicitas.	4 Sub radijs extra combustionem.
2 Terminus.	5 Obsessio inter duas infortunas.
1 Facies.	3 Applicatio cum infortuna.
5 Existentia in Cazirhi.	5 Coniunctio corporalis cum infortuna.
5 Coniunctio corporalis cum fortuna	4 Applicatio cum infortuna per ♀.
4 Applicatio cum fortuna ex Δ.	5 Applicatio corporalis cum stella de natura infortunæ.
3 Applicatio cum fortuna ex *.	5 Peregrinatio.
5 Receptio.	2 Euacuatio cursus.
3 Gaudium ratione signi.	3 Feralitas.
2 Gaudium ratione domus figuræ.	3 Gradus uacui uel fumosi.
1 Gradus lucidi.	2 Gradus tenebrosi, putei, Azemene.
1 Gradus augentes fortunam.	2 Occidentalitas trium superiorum.
1 Gradus conformes in sexu.	2 Orientalitas inferiorum.
2 Orientalitas trium superiorum.	2 Contrarietas Hayz.
2 Occidentalitas inferiorum.	5 Retrogradatio.
3 Hayz.	1 Tarditas cursus.
2 Conformitas quartæ.	1 Minutio luminis.
5 Securitas.	1 Minutio numeri.
4 Directio.	2 Descensio in circulo augis.
1 Velocitas cursus.	2 Descensio in meridiem.
1 Augmentum luminis.	3 Coniunctio cum ☿.
1 Augmentum numeri.	5 Coniunctio cum ♄.
2 Ascensio in circulo augis.	2 Via combusta.
2 Ascensio in septentrionem.	5 Eclipsis luminarium.
5 Coniunctio corporalis cum stella de natura fortunæ.	2 ☿ in ♀, uel in fine signorum, in terminis malorum.
5 Existentia inter duas fortunas.	4 Luminare infra terminos eclipsis.
	4 Luna uadens ad combustionem uel in fra 12 gradus.

Figure 3.1 – Table for scoring dignities from, *Opusculum astrologicum* (1539)⁹⁹

⁹⁹ Johann Schöner, *Opusculum Astrologicum ex diuersorum libris summa cura pro studiosorum utilitate collectum* (Nuremberg: Iohan. Petreium, 1539), chap. XXXIX.

The mathematization of astrology is one of many expressions, albeit a central one, of a larger movement for the rationalisation and modernization of astrology. There are also other nonmathematical expressions, such as the debates of natural philosophy on the validity of astrological principles and on the relationship of celestial influence with astrology. However, the mathematization had direct implications on the practice, while most of the natural philosophy discussions remained largely on a theoretical level. No matter the approach, the core idea behind this process was to justify the astrological principles as natural and thus scientifically sound. This is a very important, although discreet, facet of early modern astrological practice and can only be noticed when making a detailed comparison with earlier examples, that is, judgement practices prior to the late fifteenth century.

When contrasting the late medieval tradition with the seventeenth-century practices it is noticeable that a considerable part of the inner organics of astrological interpretation presents significant differences. This is, however, not an easy difference to explain. It is perhaps less perceptible in a broader view of the texts and practices, but the arrangement and logic of the judgements in the new late sixteenth and seventeenth-century texts have notable distinctions. In the medieval written traditions, whether Latin, Arabic or Hebrew, there is a clear concern with the inclusion of every facet of the doctrine into the methodology of judgement. Thus, its methodology is multifaceted, full of complexity, narratives and aphorisms. Yet, in many late sixteenth-century books, and perhaps more noticeably in seventeenth-century texts, this approach is simplified and much of the richness of judgement minutiae are no longer emphasised or even present. The construction of the interpretation is still astrologically complex, but it has a narrower and direct tone which becomes more evident the later texts. There is greater emphasis on the explanations of the computations and measurements, but considerably less in the interpretation, which in some books becomes almost simplistic. This is particularly discernible in the Catholic context, where this process was accompanied and amplified by the Church's restrictions, but it is present in one form or another throughout all early modern astrological literature. Under the Church's strictures astrology became blander and much of the complexity found in the medieval sources, washed out. It must be noted however, that the degree of this effect varies among different authors and must always be considered on an individual basis – as each has its own style. The publications of the well-known English astrologer William Lilly are a good example of the permanence of older methodologies. Lilly did not operate under the same set of religious strictures as many of his European contemporaries. He used a more traditional approach in his astrological works and

was able to publicly deal with topics utterly forbidden in Catholic countries, such as interrogations or predictions on a person's vocation, successes and marriage, but because he wrote in English, his book was mostly unknown outside England, and thus not a target of grand reactions or criticisms.¹⁰⁰ Yet, even in the more traditionalist inclined texts such as Lilly's the quantification and computation trends are still firmly present and there is a notable absence of many of the doctrine's elements that were a constant presence in medieval treatises. Examples are the many Parts or Lots, that despite being referenced by some sixteenth-century authors like Francesco Giuntini and Johannes Schöner, were gradually discarded in most of the subsequent astrological texts.¹⁰¹

Hand in hand with this emphasis on mathematics there is also another trend in astrological judgements that focuses on the symbolism and visual content of the astrological components. This approach was perhaps strengthened by the Neo-platonic revival of the late fifteenth century by authors such as Marsilio Ficino (1433–1499), but it was not a complete novelty to astrological thinking. This type of interpretation is present, for example, in some of the astrological attributes of the signs derived from a direct correlation with its corresponding constellation image. For example, their classification into human, mute, maimed, quadruped and feral signs, which are directly derived from the figure being a human being or an animal, the type of animal, and the figure being partial or complete.¹⁰² It was also present in astrological magic and in the fabrication of talismans which make extensive use of this type of sign or planetary imagery.¹⁰³ In the early modern period this derived into a slightly different approach: an allegorical interpretation of astrological symbols, sometimes beyond their usual astrologically established boundaries, as will be exemplified further on in this research. The practice became quite noticeable in many late seventeenth century practitioners, as will be demonstrated in subsequent chapters, being used to enhance the astrological attributes of the

¹⁰⁰ For the work of William Lilly and the status of astrology in his time, see Ann Geneva, *Astrology and the Seventeenth Century Mind: William Lilly and the Language of the Stars* (Manchester: Manchester University Press, 1995); Curry, *Prophecy and Power*; and also Capp, *Astrology and the Popular Press*.

¹⁰¹ Hasse, 'Astrology: Ptolemy against the Arabs', 265–67.

¹⁰² For example, Taurus, being represented by the bull is considered a bestial, quadruped, domestic sign, and since only the front of the bull emerging from a cloud, is represented, it is also considered a maimed or defective sign. For a list of these attributions see for example, Alcabitius, *Introduction* I.23. See also Wolfgang Hübner, *Die Eigenschaften Der Tierkreiszeichen in Der Antike: Ihre Darstellung Und Verwendung Unter Besonderer Berücksichtigung Des Manilius*, Sudhoffs Archiv : Zeitschrift Für Wissenschaftsgeschichte, Heft 22 (Wiesbaden: F. Steiner, 1982).

¹⁰³ On this type of practices, see: Charles Burnett, 'Tābit Ibn Qurra the Ḥarrānian on Talismans and the Spirits of the Planets', *La Corónica: A Journal of Medieval Hispanic Languages, Literatures, and Cultures* 36, no. 1 (2007): 13–40; Rutkin, 'The Physics and Metaphysics of Talismans (Imagines Astronomicae) in Marsilio Ficino's De vita libri tres: A Case Study in (Neo)Platonism, Aristotelianism and the Esoteric Tradition'; as well as Nicolas Weill-Parot, *Les 'images astrologiques' au Moyen Âge et à la Renaissance: spéculations intellectuelles et pratiques magiques (XIIe-XVe siècle)* (Honoré Champion, 2002).

constellations to provide a richer interpretative narrative in the interpretation of comets and other phenomena, or to fill a void in the tradition when dealing with the new defined constellations of the Southern Hemisphere. Quite often these allegories are mixed with Christian and Messianic ideologies. A well-known example of this type of symbolical approach to a number of different subjects (only occasionally applied to astrology) is the Jesuit Athanasius Kircher (1602-1680), whose work will be addressed later on. This style of interpretation coexisted with the computation methodologies, showing a strong contrast between an almost only symbolic type of interpretation, sometimes with little support of astrological theory, and an approach driven by mathematical precision with little flexibility of interpretation. It is not uncommon to observe both in the same author, and these conceptual approaches to astrology seem to colour, albeit on different levels, the practice of sixteenth and seventeenth-century astrologers. Some authors are primarily mathematical in their approach, others emphasise symbolic interpretations. Yet others even, show a similar amount of both, where very precise mathematical considerations are then combined with highly allegorical and ideological interpretations with a strong component of visual elements, creating what could be called a Baroque astrology.¹⁰⁴



¹⁰⁴ Example of this type of discourse will be addressed below; see also Luís Campos Ribeiro and Henrique Leitão, ‘Astrology with New Eyes: The Telescope in Astrological Prognostication’, *Journal for the History of Astronomy* 49, no. 3 (2018): 345–62; and Luís Campos Ribeiro, ‘Comets and Prophecy: A Combination of Art, Science and Astrology in Seventeenth-Century Portugal’, in *Actas/Anais I Congresso Lusófono de Esoterismo Ocidental. Simpósio Temático Sobre Arte e Esoterismo Ocidental*, ed. Rui Lomelino de Freitas and Teresa Lousa (Lisboa: Universidade Lusófona, 2017), <http://recil.grupolusofona.pt/handle/10437/7516>.

Chapter 4. The marginalization of astrology

The very last topic in this overview of early modern astrology is its gradual removal from the scientifically accepted branches of knowledge. This process of marginalization took place between the second half of the seventeenth century and the early decades of the eighteenth century, ending the millennia long standing of astrology as a part of science. Many reasons have been proposed for astrology's scientific demise, but none appears to fully explain this process of marginalization.¹⁰⁵ It is certain that by the mid-seventeenth century astrology was facing a critical challenge: its identity as a science. This crisis originated inconspicuously with the changes in natural philosophy and the new views of the world and was perhaps accelerated by the cosmological debates of the late sixteenth century and the new telescopic discoveries of the early seventeenth century. However, the effect these changes had is not as obvious as it would seem. None of these issues appear to have significantly affected the way astrology was practiced. There were no widespread debates on the consequences of the new discoveries on the astrological doctrine, only opinions by isolated authors that appear to have no immediate repercussion on astrology. Another more obvious obstacle was the abovementioned restrictions imposed by the Church in this period. Not only they limited most of its practice to the restricted contexts of medicine, agriculture and navigation, but also penalised its most valued asset, prediction, and had a considerable effect on its curriculum. Yet not even these restrictions put a stop to the practice of astrology; it adapted to accommodate the new parameters and ideas. Religion, despite its notable effect, was not in itself the major factor in the demise. On the contrary, religious restrictions largely stimulated the move towards more scientific forms of astrology since these gave it legitimacy in the eyes of the Church.

Astrology as science

As any form of knowledge astrology did not remain rigid and unchanged throughout its existence. In fact, it had a highly adaptable discourse, being able to coordinate its practice in many different cultural and scientific backgrounds, as well as in different social strata. Since the classical period and throughout the Middle Ages authors discussed the techniques and the astrological associations, evaluating their limits, application and sources. Like any other

¹⁰⁵ Early argumentation for the complexity of this problem can be found in Keith Thomas, *Religion and the Decline of Magic* (New York: Scribner, 1971); Eugenio Garin, *Astrology in the Renaissance: The Zodiac of Life* (London - Boston: Routledge & Kegan Paul, 1983); S. Jim Tester, *A History of Western Astrology* (Woodbridge: Boydell, 1987). An account of the changes in astrology in early modern period can also be found in Kocku Von Stuckrad, *História da astrologia: da Antigüidade aos nossos dias* (São Paulo: Ed. Globo, 2007), 270–94; initially published as Kocku Von Stuckrad, *Geschichte der Astrologie: Von den Anfängen bis zur Gegenwart* (Munich: C. H. Beck, 2003).

premodern form of knowledge its practice generated debate, leading to the selection of certain tools and techniques over others considered inefficient or less accurate. In the western tradition practitioners and thinkers consolidated astrology's acceptability by supporting their arguments in natural philosophical reasoning solid bases of Aristotelian physics, and in Ptolemaic cosmology. This was one of the main lines of defence of astrology's scientific legitimacy (the other being the empirical evidence of its practice). Each of the planet's natures and influences was rooted in the geocentric Ptolemaic universe; its operating mechanism was based on the concept of the four elements; and the interplanetary relationships explained by classical optics. Ptolemy's *Tetrabiblos*, the omnipresent text, from Antiquity to the seventeenth century, set down many of these principles, which were later developed by others. This system was not unchallenged, and since antiquity there were many who questioned the scientific validity of astrology. However, philosophers and astrologers had always countered these arguments and Aristotelian natural philosophy continued to be for centuries the main supporting argument for astrological practice; even despite the criticisms of later influential authors such as the aforementioned Nicholas Oresme and for the early modern period the unavoidable Giovanni Pico della Mirandola. These anti-astrological argumentations, however, did not pass unnoticed, and in the aftermath of Pico's *Disputationes* practitioners of astrology, following a trend already noticeable in the fifteenth century, began even more favouring the components of the art that could be explained naturally, discarding the remainder as irrational.

In this scenario, the slow but continuous dismantling of the Aristotelian system became, by the mid-seventeenth century, a greater threat to astrology's legitimacy than religion had been. Even within the restrictions of the Church, the natural practices of astrology were allowed because of their unquestionable scientific status. When this position began to crumble, some of the old arguments became stronger and the matter of scientific validity, rather than religious licitness, began to occupy the centre of the anti-astrological debates. In this type of argumentation, the claims of astrology's predictive abilities and the methodologies which composed the astrological doctrine, were scrutinised and questioned. While the discussion was made in Aristotelian terms, as was the case throughout the seventeenth century, astrology kept the same counterarguments that had been used for centuries. When finally, the Aristotelian system was replaced by the new mechanistic natural philosophy there was no other widely acceptable explanation to astrology that could successfully dialogue with the new science. Thus, the demise of the Aristotelian system, combined with the religious antagonism, and growing scientific criticism, strongly contributed to the downfall of astrology as a mainstream,

accepted form of science. However, it still does not explain the entire process since, amidst these changes, several authors addressed the need for a proper revision of the astrological system as a means to validate it as a science.¹⁰⁶ Francis Bacon (1561-1626), for example, proposed several revisions of astrology in *De augmentis scientiarum* (1623) and to a lesser extent in other texts. He removed elements he considered superstitious, revised the traditional four divisions (revolutions, nativities, interrogations and elections, of which he considered revolutions as the only valid one), and suggested a method of verification of astrological predictions through historical research.¹⁰⁷ Johannes Kepler (1571-1630), who was also a practicing astrologer, proposed several changes in astrology's technical and natural philosophical basis, the best known being the discussion of planetary harmonics and the introduction of new geometric configurations.¹⁰⁸ He also proposed significant changes by rejecting core concepts of zodiacal signs and the celestial houses.¹⁰⁹ Jean-Baptiste Morin (1583-1656), a practicing astrologer in the French court also proposed several revisions to the astrological system in his magnum opus, *Astrologia Gallica* (1661), but perhaps from the more internalist viewpoint of a practitioner. For example, he rejected several of the essential dignities and revised others.¹¹⁰ He attempted to disprove heliocentrism and Copernican ideas, using as his main argument the effectiveness of astrology.¹¹¹ As the Aristotelian philosophy gave place to mechanistic interpretations of nature some authors attempted to discuss astrology within the

¹⁰⁶ For an extended discussion on the topic see Brendan Dooley, 'Astrology and Science', in *A Companion to Astrology in the Renaissance*, ed. Brendan Dooley, Brill's Companions to the Christian Tradition 49 (Leiden, Netherlands ; Boston: Brill, 2014), 233–66; and Rutkin, 'Astrology'.

¹⁰⁷ On Francis Bacon and astrology see for example Mary Ellen Bowden, 'The Scientific Revolution in Astrology: The English Reformers, 1558-1686' (PhD thesis, New Haven, Connecticut, Yale University, 1974), 165–69; Dooley, 'Astrology and Science', 238–42; Rutkin, 'Astrology', 550–52.

¹⁰⁸ For example, he introduces additional aspects (angular relationships between the planets) of 72°, 144°, 36° and 108°, besides the traditional five (conjunction – 0°, opposition – 180°, trine – 120°, square – 90° and sextile – 60°). See David Juste, 'Musical Theory and Astrological Foundations in Kepler: The Making of the New Aspects', in *Music and Esotericism*, ed. Laurence Wuidar, Aries Book Series 9 (Leiden: Brill, 2010), 177–95.

¹⁰⁹ On Kepler's views on astronomy and astrology see also Judith V. Field, 'A Lutheran Astrologer: Johannes Kepler', *Archive for History of Exact Sciences* 31, no. 3 (1984): 189–272; Rabin, 'Kepler's Attitude Toward Pico and the Anti-Astrology Polemic'; Robert S. Westman, 'Kepler's Early Physical-Astrological Problematic', *Journal for the History of Astronomy* 32 (2001): 227–36; Patrick Boner, *Kepler's Cosmological Synthesis: Astrology, Mechanism and the Soul*, History of Science and Medicine Library, Medieval and Early Modern Science, 39. v. 20 (Leiden: Brill, 2013). For recent studies on Kepler's astrological practice see Greenbaum and Greenbaum, *Kepler's Astrology*; and Dorian Gieseler Greenbaum, 'Kepler's Personal Astrology: Two Letters to Michael Maestlin', in *From Masha' Allah to Kepler: Theory and Practice in Medieval and Renaissance Astrology*, ed. Charles Burnett and Dorian Gieseler Greenbaum (Ceredigion, Wales: Sophia Centre Press, 2015), 177–200.

¹¹⁰ Among other things he rejects the terms and faces, considering them Arabic fictions, which is not exactly a novelty at his time, and presents a revised version of the triplicity rulers. See Jean-Baptiste Morin, *Astrologia Gallica Books 13, 14, 15, 19*, trans. James Herschel Holden (Tempe, AZ: American Federation of Astrologers, 2007), bk. 15.

¹¹¹ Morin de Villefranche is a complex figure involved in long disputes against Copernicanism. On his work and views, see: Lynn Thorndike, *History of Magic and Experimental Science. The Seventeenth Century.*, vol. 7 (New York: Columbia University Press, 1958), 477–91; Robert Alan Hatch, 'Between Astrology and Copernicanism: Morin – Gassendi – Boulliau', *Early Science and Medicine* 22, no. 5–6 (2017): 487–516; Steven Vanden Broecke, 'An Astrologer in the World-Systems Debate. Jean-Baptiste Morin on Astrology and Copernicanism (1631-1634)', in *Copernicus Banned. The Entangled Matter of the Anti-Copernican Decree of 1616*, ed. Natacha Fabbri and Federica Favino, Biblioteca Di Galilæana, VIII (Florence: Leo S. Olschki, 2018), 223–41.

new parameters of science. Claude Gadyrois (c.1642-1678) published in 1671 an explanation of astral influence in the perspective of Cartesian theories. However, his discussion of the topic was mostly philosophical and theoretical, and his Cartesian astrology appears to have had little reception.¹¹² The chemist and physicist Robert Boyle (1627–1691) also made some arguments on the possibility of a mechanistic astrology and discussed the influence of celestial bodies in the air and the atmosphere in his *General History of the Air* (1692), whilst the physician Richard Mead (1673–1754) suggested a Newtonian theory of celestial influence and wrote on its effects on health.¹¹³ This form of research is present throughout the eighteenth century. Thinkers such as Edmund Halley (1656–1742) and Joseph Lalande (1732–1807) studied the natural effects of comets, while others, like the physicist Giuseppe Toaldo (1719–1797), considered the influence of the planets as well.¹¹⁴ It is important to notice that, although the term ‘astrology’ is widely used in many of these texts, it involved only the influence of celestial bodies on natural phenomenon within the now refurbished field of natural astrology or physical astrology (as discussed above). This meant only the physical study of the influences of the planets on the weather and earthquakes, as well as on medicine where these ideas appear to have lingered for more time, being discussed by authors such as Friedrich Hoffmann (1660–1742) and Georg Ernst Stahl (1659–1734).¹¹⁵ There is always in these works a clear detachment from any of the practices of horoscope judgements or prognostications, and traditional astrological concepts, such as zodiacal signs, celestial houses, and planetary rulerships, were no longer considered. Despite some instances of observation and experimentation, most of these ideas remained on the theoretical side and were gradually abandoned. Even in this stricter field of natural astrology, there was never a successful adaptation of the astrological principles to the new mechanistic views of the Cosmos, at least not a scientifically accepted one. Thus, astrology’s remaining husks fell away in the wake of the new physics. The popularisation of astrology and

¹¹² Claude Gadyrois, *Discours Sur Les Influences Des Astres, Selon Les Principes De M. Descartes* (Paris: Jean-Baptiste Coignard, 1671); For a discussion on his ideas see Aaron Spink, ‘Claude Gadyrois and a Cartesian Astrology’, *Journal of Early Modern Studies* 7, no. 1 (2018): 151–71; For further discussion on the French contributions to this discussion see Drévilion, *Lire et Écrire l’avenir*, pts 2 and 3.

¹¹³ Bowden, ‘The Scientific Revolution in Astrology’, 196–212; On Boyle and Mead’s astrology see also Mark Harrison, ‘From Medical Astrology to Medical Astronomy: Sol-Lunar and Planetary Theories of Disease in British Medicine, c. 1700–1850’, *The British Journal for the History of Science* 33, no. 1 (2000): 25–48.

¹¹⁴ On the study of the influence of comets, see Simon Schaffer, ‘Newton’s Comets and the Transformation of Astrology’, in *Astrology, Science, and Society: Historical Essays*, ed. Patrick Curry (Woodbridge, Suffolk; Wolfeboro, N.H.: Boydell & Brewer Inc, 1987), 219–43; Simon Schaffer, ‘Authorised Prophets: Comets and Astronomers after 1759’, *Studies in Eighteenth Century Culture*, no. 17 (1987): 45–67; Giuseppe Toaldo’s research and observations were published in *Della vera influenza degli astri, delle stagioni, e mutazioni di tempo, saggio meteorologico fondato sopra lunghe osservazioni, ed applicato agli usi dell’agricoltura, medicina, nautica, ec.* (Padova: Stamperia del Seminario, 1770).

¹¹⁵ Rombouts, ‘Enlightenment’, 113; see also Harrison, ‘From Medical Astrology to Medical Astronomy’; Anna Marie Eleanor Roos, ‘Luminaries in Medicine: Richard Mead, James Gibbs, and Solar and Lunar Effects on the Human Body in Early Modern England’, *Bulletin of the History of Medicine* 74, no. 3 (2000): 433–57.

its subsequent downgrade to basic and more widely understandable terms became also a strong obstacle to any remnants of erudite practice and to serious academic discussion on the nature of astrology, even in a symbolic or philosophical manner. No reputed thinker would risk associating himself with popular and simplistic practices, sometimes not involving its best representants.¹¹⁶ Two other elements can also be considered: first, astrology's religious disrepute that had been strongly consolidated over two centuries; secondly, the conflicting opinions of astrologers resulting from decades of revisionism, and highly disseminated in the various new books, tables and almanacs written since the sixteenth century – a fact strongly emphasised by astrology's detractors. The end-result was the academic dismissal of the elements of astrological doctrine as silly and irrational, demoting the entire astrological system to an irrevocable status of superstitious nonsense in the eyes of science.

A changed knowledge

Whatever point of view is chosen, it is clear that the marginalization of astrology from the scientific corpus was not a straightforward monolithic event. Recent studies have highlighted the complexity and the heterogenous nature of this process, which seems to have occurred in different manners and at different times depending on country and context.¹¹⁷ Theology, which was a great opponent to astrological practice in the passage from the mid-sixteenth to the mid-seventeenth century, as seen above, appears to have had little impact on the final dismissal of astrology as a valid science. The discussion of astrology's scientific validity was not particularly affected by the new astronomical discoveries, as most of the argumentation used in this regard was the same that had been around since antiquity. In some instances, astrology appears to have been simply put aside by the academics, without any particularly violent criticism, while in others, there was an active dismissal of astrology or even public condemnation.¹¹⁸ Some authors suggest that increasingly popular satirical criticisms also led

¹¹⁶ See, for example Susan Sommers, *The Sibyls of London: A Family on the Esoteric Fringes of Georgian England* (Oxford: Oxford University Press, 2018).

¹¹⁷ England is perhaps the best known case study, see for instance Curry, *Prophecy and Power*; and 'Astrology In Early Modern England: The Making of a Vulgar Knowledge', in *Science, Culture, and Popular Belief in Renaissance Europe*, ed. Stephen Pumfrey, Paolo L. Rossi, and Maurice Slawinski (Manchester: Manchester University Press, 1991), 274–91; The Netherlands case was studied in Vermij and Hirai, 'The Marginalization of Astrology'; and the French was discussed in Dré villon, *Lire et Écrire l'avenir*; for Italy see Casali, *Le Spie Del Cielo*; the latest studies on this topic were published in Rienk Vermij and Hiro Hirai, eds., *Early Science and Medicine. The Marginalization of Astrology*, vol. 22, 2017; to which must be added H Darrel Rutkin, 'How to Accurately Account for Astrology's Marginalization in the History of Science and Culture: The Central Importance of an Interpretive Framework', *Early Science and Medicine* 23, no. 3 (2018): 217–43.

¹¹⁸ The silent dismissal of astrology is exemplified by Tayra M. C. Lanuza Navarro, 'From Intense Teaching to Neglect: The Decline of Astrology at the University of Valencia and the Role of the Spanish *Novatores*', *Early Science and Medicine* 22, no. 5–6 (2017): 410–37. Cases demonstrating an active attack on the academic stand of astrology are offered by Jane

astrology to drift away from the educated circles. This combined with a gradual removal of astrology from the educational system, being scaled down or even expunged (at least officially) from the mathematical curricula of many universities and colleges.¹¹⁹ Yet, despite these trends, in the first decades of the eighteenth century, astrology was still being taught or presented in one form or another in the academy milieu, as will be exemplified further in this study. It was also being discussed by several figures of modern science and medicine, as mentioned earlier.¹²⁰ The loss of political interest and the progressive lack of patronage towards astrological practices in the late seventeenth century and later also seem to have been contributing factors.¹²¹ Yet, in all these angles there are always exceptions and particularities to be considered, making the study of the marginalization of astrology a challenge for further historical research.

Inevitably, by the first half of the eighteenth century, astrology became a symbol of ignorance and superstition, and an obligatory subject in the criticisms of most authors of the Enlightenment. In fact, this very association of astrology with the old-world systems quickly turned it into a preferred target. Astrology became the poster child for the ignorance and superstition of the past, a thing from a dark time to be excised from the new age of light and reason. For Diderot (1713-1784) and Voltaire (1694–1778), astrology was a way to subjugate the masses; its denial was a symbol of the freedom of the Enlightenment. In Spain, Benito Jerónimo Feijóo (1676-1764) published between 1726 and 1739 the *Teatro crítico universal*, a work in eight volumes against superstition and ignorance, which deals with a large number of topics, among them astrology.¹²² His arguments against astrology combine both religious and scientific reasoning and was influential on Iberian authors.

Yet, despite its marginalization and rejection as a superstition and pseudoscience, astrology still lived on. Outside its continuous presence in a more degraded form in the popular almanacs, its erudite practice persisted and there were still a few academics inclined to study and even publish on astrology, sometimes at the cost of their reputation. One of these rare

Ridder-Patrick, 'The Marginalization of Astrology in Seventeenth-Century Scotland', *Early Science and Medicine* 22, no. 5–6 (2017): 464–86; as well as in Hatch, 'Between Astrology and Copernicanism'.

¹¹⁹ Rutkin, 'How to Accurately Account for Astrology's Marginalization in the History of Science and Culture', 233–38.

¹²⁰ As shown, for example in Lanuza Navarro, 'From Intense Teaching to Neglect'; Luís Miguel Carolino, 'The Jesuit Paradox: Intellectual Authority, Political Power, and the Marginalization of Astrology in Early Modern Portugal', *Early Science and Medicine* 22, no. 5–6 (2017): 438–63.

¹²¹ See Carolino, 'The Jesuit Paradox'; and Rutkin, 'Astrology', 560; For an overview and historiography of this topic see Vanden Broecke, 'Astrology and Politics'.

¹²² Benito Jerónimo Feijóo, *Theatro crítico universal, ó Discursos varios en todo genero de materias, para desengaño de errores comunes*, vol. 1, 8 vols (Madrid: Imprenta Real de la Gaceta, 1765); For recent study on Feijóo see for example Jesús María Amillano Galech, 'Astrología y medicina para todos los públicos: las polémicas entre Benito Feijóo, Diego de Torres y Martín Martínez y la popularización de la ciencia en la España de principios del siglo XVIII' (Universitat Autònoma de Barcelona, 2010), <http://www.tdx.cat/handle/10803/32075>.

examples is that of Johannes Pfaff (1774–1835), astronomer and a professor of mathematics in Erlangen. In 1816 he published a book titled *Astrologie*, intending to promote its study, and later the *Astrologische Taschenbücher* (1822 and 1823) which included a German translation of Ptolemy's *Tetrabiblos*.¹²³

Having no place in academia and science, astrology moved to a different cultural niche. It became increasingly connected to the so-called occult sciences and gained prominence in the occultist and Hermetic movements of the eighteenth century. From there it found a renewed place in the aesthetics and symbolism of Romanticism and in the spiritualist movements of the nineteenth century, arriving at the twentieth century as a refashioned knowledge.¹²⁴



¹²³ Despite becoming an eccentric in the eyes of his colleagues, Pfaff's academic career was not affected by his interest in astrology. For some biographical references and a study of Pfaff's relation to astrology, see Günther Oestmann, 'J. W. A. Pfaff and the Rediscovery of Astrology in the Age of Romanticism', in *Horoscopes and Public Spheres*, ed. Günther Oestmann, Darrel Rutkin H, and Kocku von Stuckrad (Berlin: De Gruyter, 2005), 241–57.

¹²⁴ A comprehensive study of astrology in the eighteenth and nineteenth centuries is yet to be made. For an account of this period see, for example: Patrick Curry, *A Confusion of Prophets: Victorian and Edwardian Astrology* (London: Collins & Brown, 1992); Von Stuckrad, *História da astrologia*, 295–308; Rombouts, 'Enlightenment'.

PART II. JESUITS AND ASTROLOGY

Recent research regarding Early Modern Jesuit science has been made under the assumption that as pioneers of modern scientific thought Jesuits quickly eliminated astrology from their teachings and curriculum right at its beginning. However, astrology was still an integral part of scientific culture right until the early decades of the eighteenth century. At a time when celestial influence was an accepted principle, and astrology was part of the practice of most scientific figures such as Tycho, Galileo and Kepler, it would be odd if there were no mention whatsoever of astrology or hints of its practice or study within Jesuit contexts. Manuscripts such as the astrological manuals of the College of Santo Antão in Lisbon challenge this idea, as they show a sophisticated teaching of astrology, including a clear debate as to its legitimate limits and prohibitions. This oversight by academia might be due to two reasons.

The first is the fact that Jesuits were one of the strongest religious orders of the early modern period, one aligned with the power of the Church. Thus, the idea that Jesuits would never be involved with or endorse a highly condemned activity such as astrology, lingered in historiography making it blind to the existing evidence.

The second reason lies on the outdated, but still resilient, idea that the acceptance of astrology would be a sign of backwardness, while its rejection, a mark of progress. Therefore, when the role of the Jesuits in the advancement and dissemination of science was generally recognized, any elements that could taint this were put aside as embarrassing oddities and largely disregarded. Among them was astrology, and the notion that Jesuits would have taught, or even practiced it, would be a stain on their image as men of science and a huge dent in their modernity.

However, both points of view, the religious and the scientific, are based on a misunderstanding of astrology and its role in the early modern frame of mind and must be put aside in order to better understand Jesuit scholars within the context of their time and culture. Astrology has been used in a very strange manner by historians of the Jesuits. The same historiography that accuses them of obscurantism, rarely reproaches them of practicing astrology, in their perspective the most obscure of obscurantisms. Conversely, when viewed as progressive agents of science, it is assumed that they would have never engaged astrological practices because they would have already cast aside this type of superstitious thinking. However, both considerations are out of place historically and it is here that astrology becomes

the measure of the historian. The way in which an historian takes astrology into consideration becomes the gauge of how much the Jesuits will be considered agents of their time.

This part of the dissertation addresses the relationship of the Jesuits with astrology in different, and sometimes overlapping fields. It will show how the Jesuit printed works, particularly those against astrology, as well as its apparent absence from scientific publications, gave rise to a misleading picture of their relationship with astrology. Yet, a closer look at mathematical, astronomical, and even theological printed texts reveals a much more complex picture, where the acceptance of astrological practice is much more highlighted. These are then supported by the evidence found in the manuscript corpus, a medium much less susceptible to control or censorship. Finally, is considered the presence of astrology in their global missions in the Far East and in the New World, as an element of both scientific interchange and religious discourse.

The first two chapters address the theological discourse. The first focuses on well-known Jesuit texts against astrology from the late sixteenth and early seventeenth century, their content and different approaches in the dismissal of astrology. It also examines later anti-astrology texts from the second half of the seventeenth century, drawing attention to any changes in the discourse. The second chapter examines the writings of other well-known Jesuit theologians on the validity of astrology, revealing the existence of other positions regarding its validity and practice.

The following chapter addresses the Jesuit teaching institution and their scientific books, mainly those on mathematics and astronomy, where astrology was commonly placed. It begins by an analysis of the Jesuit teaching methodologies, the famous *Ratio Studiorum*, and the presence of astrology in their colleges and mathematical programmes. Then it surveys the Jesuit mathematical printed literature and studies the different descriptions of astrology as a field of knowledge and the position of each author towards it. Manuscript materials are then compared to the printed discourse to reveal significant differences in the attitude towards astrology. As a result, the study shows a lingering presence of astrology in the Jesuit discourse, as well as some evidence regarding its teachings and practice.

The two last chapters deal with the Jesuit intercultural exchanges in their missionary and scientific work. The first of them focuses on the role of astrology in their missions in China, also addressing the case of Japan and India, while the second deals with the participation of astrology in the scientific and religious discourse in the New World.

Chapter 5. Jesuits against astrology

It has been common for historians to address astrology not by itself but by taking the perspective of those who opposed it. This is easily explained by the fact that by the eighteenth century, astrology was excluded from the rank of accepted sciences. Thus, this implicitly pushed the historian into the role of a critic and any voice against astrology was automatically assumed to be a voice of reason, the voice of those who were right. The intellectual setting did not accept easily a stand of neutrality and this critical posture was applied even by those studying historical contexts in which this form of knowledge was considered valid science. The Jesuit case is no exception. Despite the seeming evidence that most Jesuits were against the practice of astrology, a closer revision of the matter shows a much more complex scenario, as would be expected. Since it was one of the most powerful orders of the movement of the Counter-Reformation, at a time when astrology was put under a severe sanction by the Church, it is only natural that their texts against astrology have been frequently mentioned in historiography. Indeed, within the studies of the vast corpus of Jesuit printed works, astrology is in almost all instances featured only through the treatises against its practice, and almost never in the many examples where it is taken as normal science. Thus, these anti-astrological treatises will be addressed first in order to clear the path and establish the context for a study focusing on the existing evidence for the discussion, teaching and practice of astrology by Jesuits.

Among the various texts authored by Jesuits against astrology or criticising divination by means of astrology, two stand out as particularly relevant: *Adversus fallaces et superstitiosas artes, id est, De magia, de observatione somniorum, et de divinatione astrologica* (Lyon, 1590) by Benito Pereira (1535-1610),¹²⁵ and *In astrologos coniectores libri quinque* (Lyon, 1615) by Alessandro De Angelis (1559-1620).¹²⁶ Their importance derives not only from their size, but also from the status of their authors as reputed members of the Collegio Romano. Additionally, their publishing dates fall in the decades between the issuing of the two anti-astrology bulls, right at the high point of the discussion, and at a crucial moment for the repositioning of astrology within the accepted forms of knowledge. Their impact can be assessed from the constant reference to them, which comes both as quotations by other anti-astrology authors, as well as in the form of refutations by astrology's defenders. Another frequently cited book, also

¹²⁵ Benito Pereira, *Adversus Fallaces & Superstitiosas Artes, Id Est de Magia, de Observatione Somniorum & de Divinatione Astrologica Libri Tres* (Lyon: ex officina Juntarum, 1590).

¹²⁶ Alessandro De Angeli, *In astrologos coniectores libri quinque. Auctore Alexandro de Angelis, in Collegio Romano Societatis Iesu, studiorum praeffecto* (Lyon: Horatio Cardon, 1615).

published in this period, is Martín Del Rio's (1551-1608) *Disquisitionum magicarum libri sex* (Leuven, 1599-1600) which, among many other forms of divination, also deals with astrology.¹²⁷ An in-depth study of these works and their anti-astrology argumentation could constitute an entire line of research in itself, and a much needed one, but this is not the focus of this thesis. Nonetheless, even an overview of each of these texts can offer a valuable insight on the impact of the Jesuits in the anti-astrology polemics in the late sixteenth and early seventeenth centuries.

Benito Pereira – 1590

Of Spanish origin, Benito Pereira was a theologian, a philosopher, and one of the most important figures of the early years of the Collegio Romano. He published several books, mostly on religious topics and on natural philosophy. Pereira was one of the major players in the Jesuit discussion on the status of the mathematical sciences, which he did not recognise as a proper form of obtaining knowledge from nature (a topic which shall be addressed further below). His anti-astrological text, the *Adversus fallaces et superstitiosas artes, id est, De magia, de observatione somniorum, et de divinatione astrologica* (1590), not only contributed to this mathematical discussion (as astrology was a part of mathematics), but it also became one of the major attacks on astrology after Sixtus's bull (1586). The combined effect of these two texts had a profound impact on the Jesuit's views of astrology and its placement (or absence) in their teaching programme. *Adversus fallaces et superstitiosas artes* was edited several times: 1592, 1598, 1602, 1603, 1612 and 1616. It was also partially translated into English under the title *The Astrologer Anatomiz'd: Or, the Vanity of the Star-Gazing Art Discovered by Benedictus Pererius. And Rendered into English by P. Enderbie, Gent* (London, 1661 and 1674), which includes only the section on astrology.¹²⁸ The work is divided into three books, the first and second are dedicated, respectively, to magic and prognostication through dreams, and will not be addressed in this study, the third is solely dedicated to astrological divination. In its five chapters Pereira presents several arguments against astrology and his critique focuses almost exclusively on the interpretation of nativities.

The first chapter deals with the relationship between astrology and the Church, discussing the arguments of the Church Fathers and theologians concerning the dismissal of judicial

¹²⁷ Martín Antoine Del Rio, *Disquisitionum magicarum libri sex. Quibus continetur accurata curiosarum artium, & vanarum superstitionum confutatio; utilis theologis, iuris consultis, medicis, philologis* (Lyon: Gerardus Rivius, 1599).

¹²⁸ Benito Pereira, *The Astrologer Anatomiz'd: Or, the Vanity of the Star-Gazing Art Discovered by Benedictus Pererius. And Rendered Into English by P. Enderbie, Gent*, trans. P. Enderbie (London: Ralph Wood, 1661).

astrology by Christian doctrine. Among other arguments, he highlights the prohibitions of the council of Braga, and of Toledo against the Priscillianists, the condemnation of a priest by pope Alexander IV for having consulted astrology on the matter of a robbery, the works of Chrysostom, Gregory the Great and Augustine, astrology as a deception by demons, its incompatibility with Christian faith and divine providence, and the fact that astrology was harshly condemned by the Church in the past.

The second chapter discusses judicial astrology's condemnation by philosophy and the ignorance of those professing it. He begins by stating that judicial astrologers are ignorant of celestial things and causes, because it is 'intricate and laborious' to know these things such as the nature of the heavens: the magnitude and number of orbs, their order, diversity of motions, the number of stars, their size, brightness, power and effects. As the philosophers have different opinions regarding these things, it becomes difficult to know them perfectly. Such things being abstruse, how could astrologers be certain of things to come? As the knowledge of the heavens is incomplete in such things as its matter and its motion, and since astrologers are ignorant of such things, they cannot claim to have knowledge of the future, which is even 'more remote and hidden from the knowledge of mortals' ('mortalitum intelligentiae remotissima, & occultissima').¹²⁹ In other words, if the mathematical science of astronomy is incomplete and philosophers cannot agree about the details, then astrology, which derives from astronomy, is surely uncertain. He then makes the point that the fault of the senses, the instruments and ultimately of human beings, makes any assumption derived by these means necessarily imperfect and defective, a statement which Pereira caps with quotations from sacred scripture. Thus, for him, it is impossible to obtain any knowledge of the heavens by physical means. This passage has implications not only for astrology but also for astronomy, as it questions the very possibility of a human being to know the heavens.¹³⁰ Then follows the recurrent argument that not enough time has passed for all celestial configurations to be known since astrology was first devised by the Chaldeans. Adding to this, the many mixtures and interactions of the virtues of the stars are of such complexity, that it is impossible for anyone to predict their effects. Many of Benito's critiques use astronomical arguments. For example, he questions how the astrologers can centre their study almost exclusively on the planets and their movements, when the stars are much larger than the Earth, and of a much larger number than the planets. He makes some remarks on the Nova of 1572 and discusses the differences between the ninth and

¹²⁹ Pereira, *Adversus Fallaces & Superstitiosas Artes*, 182.

¹³⁰ As discussed in Michael John Gorman, 'The Scientific Counter-Revolution: Mathematics, Natural Philosophy and Experimentalism in Jesuit Culture 1580-1670' (PhD thesis, European University Institute, 1998), 55-60.

eight heavens of whose motions and operations astrologers know nothing about. The discussion then shifts to one of calculation and precision. Benito states that it is difficult to know exactly the moment of birth, thus the precise position of the stars cannot be obtained, and furthermore their influx can suffer the interference of things such as vapours and clouds which are unaccounted for by astrologers. Consequently, the astrologer cannot make precise assumptions from such faulty information.

Chapter three deals with the matter of prediction where he gives eight reasons to prove that even if one has perfect knowledge of the stars, future events cannot be foretold. For each Pereira presents arguments and cites authorities:

1. heaven is a universal cause producing universal effects and not sufficiently delimited to produce particular effects; thus, for the prediction of future effects the knowledge of celestial causes is not enough as particular causes must also be considered.
2. twins, born at the same time have different fortunes and events.
3. people of similar birth times have different fates, and people of different birth times experience the same events (such as earthquakes, falling of houses, shipwrecks, etc.).
4. the influence of the stars is not enough to deter a person from denying or contradicting its influences, thus making the astrologers' claims vain (which he justifies with the different customs of different regions and countries).
5. human will and the soul are free from the material and corporeal causes of the heavens; thus, it cannot be foretold if a person will do evil or good, or what honours shall be acquired.
6. as many things foretold do not come to pass, it can be assumed that they are spoken 'temerarily and randomly' by astrologers and are not the result of any art.¹³¹
7. astrology has been condemned by the most eminent philosophers.
8. further arguments against the foundations of astrology are: a) the erroneous association of the qualities with the planets; b) the choice of the nativity and not of the time of conception, as well as astrology applied to the fate of cities and regions and not to animals and plants; c) the chimerical statements regarding the antiquity of astrology.

¹³¹ Cum igitur praedictiones Astrologorum ferè sinie falsae, neonisi per quam raro veridicae sint, satis liquet eas non ex arte aliqua & certis obseruationibus proficisci, sed inscienter & inconsultè ac temerè ab illis effutiri. Pereira, *Adversus Fallaces & Superstitiosas Artes*, 208.

Chapter four deals with the matter of stars being signs rather than causes, in which Pereira concludes that they are neither. Finally, chapter five addresses the four reasons why astrologers sometimes speak the truth. The first is the contract between the devil and the astrologer, or sometimes just an instigation of which he can be ignorant. The second is the occult disposition of Divine Providence which by means of the blind and dishonest astrologer, tells his client what is most fit for him to hear. The third, by a keen intellect, through insight and observation of their client's life. The fourth and last is the foolishness and credulity of their clients, who by the hope of good or the fear of fatal events, end up causing the event predicted. In none of Pereira's views does the credit go to the astrologers or astrology, since he assumed in chapter three that future events cannot be foretold by the stars.

The arguments presented are a mixture of different types of rationale, from more erudite discussions of Aristotelian philosophy and natural principles, to less grounded matters of opinion. All are quite standard and most, if not all, originate from Pico della Mirandola's *Disputationes*, that Pereira states in the preface he will present in a summarised way. However, he never makes a proper rebuttal of astrology, by discussing it in its own terms and critically rebutting its doctrine. The point which stands out in his text is that, contrary to other Jesuit authors and the Church authorities, Pereira makes no concessions towards any form of astrological practice.

Martín Del Rio – 1599-1600

Born in Antwerp in 1551, Martín Antoine Del Rio was a Jesuit theologian of Spanish descent, known by his major work, *Disquisitionum magicarum libri sex* (Lyon, 1599-1600).¹³² Printed almost a decade after *Adversus fallaces*, Del Rio's critical work examines many other forms of divination, among which is astrology. Although astrology is brought into the discussion on several instances in the book (for example in connection to magic), it is dealt with on its own in book four, chapter three, question one, *On divination from the stars* (De Coniectatione ex astris).¹³³ Due to the general nature of the work, Del Rio's debate is much more concise than Pereira's. It is divided into five sections, each ending with a conclusion. He begins by defining prognostication from the stars, making a division between licit astronomy, more universal in its prognostications, and illicit astrology, which prognosticates contingent futures:

¹³² This edition will be used: Martín Antoine Del Rio, *Disquisitionum magicarum libri sex* (Lyon: Hermannus Demen, 1608); There is a modern edition and translation of the text, though highly abbreviated: Martín Antoine Del Rio, *Investigations into Magic*, trans. P. G. Maxwell-Stuart (Manchester University Press, 2000).

¹³³ Partially translated in Del Rio, 164–68.

With regard to prognostication or judicial divination from the stars, one can establish two kinds, the first licit, the second illicit. The first is astronomy which rests upon universal, true, and unchangeable principles and aims at a knowledge of what is going to happen, e.g. the revolution of the years, the course of the stars and the differences between them. the nature of the sun and the planets, eclipses, fixed and retrograde motions, aspects, conjunctions, oppositions, and correspondences. Tycho Brahe, a noble Dane, has already published useful observations on this subject and even more is expected of him. The second type of prognostication, astrology, is as different from the first as is a concubine from a lawful wife. It rests upon general, variable principles and predicts the effects of future events which are not unavoidable in themselves but contingent upon other factors, such as some kind of enforced dependence on the stars.¹³⁴

His arguments here are mainly philosophical, but he continues his discussion by enumerating the four parts of astrology, revolutions, nativities, elections, and the ‘sculpting of talismans’ (imaginum sculpendarum) which he immediately dismisses as illicit. Of the others he remarks that: ‘None of the first three is able to predict with certainty, but the further it departs from the general canons of astrology and deals with particular individual events, the further it recedes from science and certitude and the closer it gets to lying and vanity.’ Del Rio concludes this first part by stating that:

The astrologer who does not depart from general principles and those guiding premises which are immediately relevant can, in accordance with the canons of his art, predict with accuracy general events many years, perhaps, before they happen unless either his calculations or his instruments deceive him.¹³⁵

It becomes clear that for Del Rio astrology can reach some level of prediction, although only a general one, which is a different stance from Pereira’s. Thus, his second conclusion is that astrology will not be considered superstitious ‘if it merely expresses an opinion together with a fear that the opposite may also be true’, such as ‘There may be a difficulty in getting food’ or ‘His horoscope indicates things of this nature’.¹³⁶ Developing this line of thought he reaches his

¹³⁴ Quoad coniectationem, siue iudicariam ex astris mathesim, duae possunt eius species constitui, prior licita, posterior illicita. Prima species est, *astronomia*; quae nititur universalibus, veris & incommutabilibus principiis, & scientiam consequitur futurorum artis suae: veluti revolutionis annorum, cursus siderum, distinctionis eorum, item naturae solis & planetarum, eclipsium, stationum, retrogradationum, aspectuum, coniunctionum, oppositionum, & similium: quo in genere quaedam iam prodierunt utilitatem, & maiora expectantur, Tichonis Brahe, Nobilis Dani. Altera est, *Astrologia*, tam dissimilis priori, quam pellex coniugi iustae: quae nititur principiis communibus, variabilibusque, & praedicat effecta eventuum futurorum, non necessariorum, sed contingentium: quasi ab astris necessitudine aliquâ dependentium. Del Rio, *Disquisitionum magicarum libri sex*, 1608, 294; adapted from the translation in Del Rio, *Investigations into Magic*, 164.

¹³⁵ Astronomus non recedens a suis universalibus, commensuratis, immediatimque principiis, potest iuxta canones artis suae certo praedicere, etiam multis antequam eveniant annis universales illos artis suae eventos, nisi tamen vel supputatio, vel instrumenta eum fallant. Del Rio, *Disquisitionum magicarum libri sex*, 1608, 294; Del Rio, *Investigations into Magic*, 165.

¹³⁶ Conclusio, *Astrologia species illa prima non est superstitiosa, si tantum profitetur opinionem cum formidine oppositi*; v.g. minantur astra annonae caritatem; fortè futura durior annona; metuo ne sit, &c. *Secunda verò non est superstitiosa, si tantum profitetur suspicionem*, v.g. suspicio est hunc puerum fore talem: inclinabitur ad hoc: horoscopus illi talia portendit, &c. *Tertia pars denique non est superstitiosa, si tantum dicat se aestimare, quòd res bene sit cessura*. *Disquisitionum magicarum libri sex*, 1608, 294; *Investigations into Magic*, 165.

third conclusion which establishes only these three forms of astrology and deems as illicit any affirmation of some future event as certain:

Astrology that goes further than these three types and predicts that something is bound to happen is definitely illicit and superstitious. All divination of this kind is uncertain and useless and unworthy of being called an art.¹³⁷

He then discusses the standard religious bounds regarding free will and contingent events, and the sins incurred by practicing astrology illicitly, with the relevant quotations of the Church Fathers, theologians and other authors, such as Pico della Mirandola; additionally, he also disputes the arguments used by astrologers to support their practice from the sacred texts. The next section discusses the use of astrological prognostication in medicine, of which Del Rio is very critical. In this regard he comments briefly and generally on the nonsense of certain astrological doctrines such as the ‘imaginary’ aspects of the Moon commonly used for medical diagnosis.¹³⁸ There follows the final discussion which asserts that using astrology for the knowledge of hidden things such as thefts, treasures, and virginity are utterly forbidden.

Despite his acceptance of celestial influence and of the possibility of prediction of general events from the celestial bodies, Martín Del Rio reveals himself to be critical and harsh with many astrological practices which he condemns as superstitious. Most of his work is paraphrasing several other authorities, among which it is difficult to discern his own voice. Thus, like Pereira, he merely continues the Church’s and Pico’s anti-astrological tradition.

Alessandro De Angelis – 1615

De Angelis was born in Spoleto in 1559. He was educated in the Collegio Romano where he was a disciple of Christopher Clavius; later he held important positions at the Collegio as a professor of natural philosophy, logic, metaphysics and theology, and was head of studies between 1611 and 1617. His book, *In astrologos coniectores libri quinque* (Lions, 1615), is perhaps an even more significant contribution to the Jesuit anti-astrological discourse than any of the above. One of its main strengths is that it deals exclusively with astrology, therefore its critical discourse is not diluted between divinatory arts of entirely different natures. Another is

¹³⁷ Astrologia ullo istorum trium modorum ulterius tendens, & praedicens aliquid ut certò eventurum merè illicita est, & superstitiosa: totàque huiusmodi divinatio incerta est ac vana, nec artis aut scientiae digna nomine. *Disquisitionum magicarum libri sex*, 1608, 295; *Investigations into Magic*, 166.

¹³⁸ These ‘imaginary’ aspects probably refer to the aspects of the Moon to the planets considered by physicians when studying the progress of a disease through astrology.

the fact that, differently from Pereira, De Angelis debates in more detail several fundamental concepts of astrological doctrine. The argumentation is structured into five parts or books.

The first, 'On the actions of the heaven in these inferior things in general' ('De coeli actione in haec inferiora generatim'), deals with matters of natural philosophy. Specifically, it discusses celestial influence, its extent, limitations and implications for astrology. Despite admitting the existence of celestial influence, De Angelis is adamant in considering that astrologers wrongly attribute to celestial bodies effects which are due to material, and thus sublunary, causes. Though he is generally critical of all forms of astrology his discourse is particularly centred on the interpretation of Nativities and thus on human affairs. Girolamo Cardano appears to be his preferred target, as his works and sayings are constantly being refuted throughout the text. Though Cardano's works were in this period a primary source for students of astrology, his constant reference to him appears exaggerated.

In the second and third books 'Of conception and pregnancy' (De conceptu, & foetu) and 'Of birth and delivery' (De natali, & partu), De Angelis turns the discussion on the celestial influence and astrology applied to human beings. Here, he deals with the recurrent question of whether the astrologer should not consider the moment of conception instead of that of birth. It also discusses factors which can influence the native such as events during pregnancy, nutrition and others. The astrological doctrine is the focus of De Angelis critiques in book four 'Where astrology is criticised by astrological arguments' ('Quo Astrologia Astrologicis conclusionibus exagitur'). In this section De Angelis discusses the claims of the astrologers regarding the functioning of astrology, experience, as well as several technical concepts such as the Zodiac and its qualities, asterisms, the twelve celestial houses, the essential dignities, the qualities of the zodiacal degrees; he also addresses the matter of twins and the birth times of cities. The book closes with several chapters on astrological predictions, their limitations, nonsense, and the possibility of demonic inference. Finally, book five 'Who also argues against' ('Qui & exoreticus') deals with the Church's position regarding astrology by presenting in sixteen chapters the various opinions of the church fathers and theologians, being Augustine one of his main sources.

Despite its sharper presentation of arguments against astrology, De Angelis's text brings little novelty to the discussion. Like Pereira, most of his arguments, if not all, are based on Pico's *Disputationes* and on the standard theological arguments. Yet, despite lacking innovation this work became authoritative and had to be contested in any proper apology of astrology.

The *Bibliotheca Selecta* – 1593

Although of a different nature, another significant early text is the famous *Bibliotheca selecta* (1593) compiled by the Jesuit Antonio Possevino (1533-1611).¹³⁹ Intended as a public display of Jesuit scholarship, the *Bibliotheca* was created as a compendium of knowledge addressing several topics and reviewed by highly considered scholars of the Collegio Romano, among which Christopher Clavius. Therefore, it provides a further example of the Jesuit public view on astrology. Although it is just one among numerous topics, astrology or more correctly judicial astrology is briefly mentioned throughout the two volumes when discussing authors such as Aristotle and Hippocrates, and on topics such as medicine and divination. It is presented on its own in the second volume, book fifteen, chapters ten to fifteen.¹⁴⁰ The text reiterates an opposing view on judicial astrology, as the opening sentence of the first chapter, ‘Astrologiae iudiciariae refutatio’ (‘The refutation of judicial astrology’), makes clear:

Those who believed that astrology is that which, from the observation of the celestial bodies, can foreknow future events that pertain to life, or those that are dependent on free will; those where mostly either pagan, or if Christian by name, and persisting in their error, were completely shipwrecked in their faith.¹⁴¹

The five chapters present the standard arguments regarding the limits and restriction of astrology by the Church, as well as a list of the main authorities who addressed the matter and wrote against it. It also discusses the laws prohibiting divination through astrology and closes with a chapter presenting some of the authors that wrote in its defence, against Pico della Mirandola. The *Bibliotheca* adds very little to the debate, as its contents are quite commonplace. As in Pereira’s work, albeit less adversarial, the discussion is mainly centred on its incompatibility and restriction in view of Catholic doctrine. Many of the anti-astrological views are taken directly from the *Disputationes*, which is quoted frequently. Since it is neither an anti-astrological text, nor a theological text, the *Bibliotheca* was not as influential in astrological discussions as the three works presented above. Yet, it reinforces an opposing view on judicial astrology present in the printed Jesuit literature in the aftermath of Sixtus’s bull, which will also have its echo in the mathematical publications, and the use of astrology by members of the

¹³⁹ Antonio Possevino, *Bibliotheca Selecta qua Agitur de Ratione Studiorum in Historia, In Disciplinis, in Salute Omnium Procuranda*, vol. 1, 2 vols (Roma: Typographia Apostolica Vaticana, 1593); *Bibliothecae Selectae Pars Secunda qua Agitur de Ratione Studiorum in Facultatibus, Quæ in Pagina Sequenti Indicantur*, vol. 2, 2 vols (Roma: Typographia Apostolica Vaticana, 1593).

¹⁴⁰ Possevino, *Bibliotheca Selecta*, 1593, 2:202–7.

¹⁴¹ Astrologiam esse, quæ possit prænosce ex siderum obseruatione futura rerum euenta, quæ pertinent ad vitam, siue ad ea, quæ pendent ex arbitrij libertate, Qui crediderunt, hi plerique fuere vel ethnici, vel si Christianum nomen gerentes in eo errore perstiterunt, à fide denique naufragarunt. Possevino, 2:202.

Society that is important to note since it will be relevant for the discussions in chapter seven and in Part Three.

Later examples

There are other treatises against astrology by Jesuit authors, but perhaps not so influential as the abovementioned. For example, *Le tombeau de l'astrologie judiciaire* (Paris, 1657) by Jacques de Billy (1602-1679), and *Astrologia ottima, indifferente, pessima* (Paris, 1663) by Gian Battista Noceto (1586-1682).¹⁴² Being written in vernacular languages and not in the more universal Latin, their impact was more restricted, but for the most part these treatises present the same arguments as the ones that came before them, thus adding very little to the debate.

Jacques de Billy, a professor of mathematics in several Jesuit colleges in France, wrote his book to discredit astrology and horoscopes (here used in the sense of astrological figures or charts) as a knowledge without foundation. In each chapter he criticises a facet of astrology, from the very calculation of the charts, addressing whether the birth or the conception should be chosen, to several components of the doctrine such as the essential dignities, the head and tail of the dragon, the Lot of Fortune, and the doctrine of the Hyleg and the Alcocodem. His argumentation, in a similar fashion to De Angelis, focuses mostly on the theoretical and technical aspects of astrological practice, and not so much on the religious issues. Therefore, for the most part of the treatise he makes a 'scientific' deconstruction of the astrological doctrine of which he appears to have a fairly good knowledge.

Noceto, was a professor in many colleges in Italy and a preacher. From 1649 onwards, he was involved in a heated polemic against judicial astrology, which resulted in the publication of several anti-astrology texts, some under an alias.¹⁴³ *Astrologia, ottima, indifferente, pessima*, is the last of the series. In his discourse he praises astronomy's excellency (*ottima*) and recognises astrology to be able to make predictions but in a general sense and as an uncertain thing (*indifferente*), and in the matters of navigation, agriculture and medicine, as set out in Sixtus's bull. His main critique falls on judiciary astrology, which he considers a very bad thing (*pessima*). Noceto's argumentation contrasts greatly with Billy's in at least three ways. First, he does concede astrology some credit, accepting its natural effects. Secondly, his arguments are for the most part religious and moral, giving only a brief and general discussion of

¹⁴² Jacques de Billy, *Le Tombeau de L'astrologie Judiciaire* (Paris: Michele Soly, 1657); Giovanni Battista Noceto, *Astrologia Ottima, Indifferente, Pessima* (Paris: Enrico Sara, 1663).

¹⁴³ On Noceto see Elide Casali, '«Noceto nocente» e «Il Ligure risvegliato». La polemica fra G. B. Noceto e T. Oderico, nella Genova del seicento', *Studi secenteschi* 34 (1993): 287–329.

astrological doctrine. Lastly, if Billy is shown to have some knowledge of astrological doctrine, Noceto appears to be more familiar with the theological debates and to rely on second-hand accounts for the more technical parts.¹⁴⁴

The anti-astrological discourse

Pereira, Del Rio and De Angelis exemplify the Jesuit anti-astrology literature at its beginning, developing from a wider discussion on divination to a specific attack on astrology; De Angelis might be considered an intermediate step from where the discussion became focused exclusively on astrology. Billy's and Noceto's texts not only represent a later stage of the anti-astrological discussion, but also two different categories of discourse which were matured from the first: one with a more 'scientific' approach, the other more religious in nature.

It would be expected that the new celestial discoveries would play a major role in this discussion. They would be a striking argument against astrology, as they would be completely outside any traditional astrological canon, and of the experience of the astrologers. Yet, oddly, they are not mentioned in this regard. Pereira and Del Rio wrote their treatises before the coming of the telescope, but in 1615 De Angelis was certainly aware of such discussions, which began at the very moment Galileo published his findings. By the time both Billy and Noceto published their books it was already mainstream knowledge.

For the most part anti-astrological texts (of Jesuit authorship or otherwise) mix several categories and levels of criticism, concatenating in a single discourse, and without a clear separation, arguments of different and often incompatible nature. These include: exposing the feeble knowledge of some practitioners, debating proper ethical matters while attributing malicious intentions, criticising certain technical aspects of astrology's doctrine, and questioning the deeper ontological issue of the very possibility of astrological prediction. All are then cemented with theological arguments which are by nature alien to astrology as a form of knowledge. It is common for the arguments to reveal the author's lack of knowledge of the

¹⁴⁴ Another later work worth mentioning, was written by the Jesuit mathematician, Jean François (1582-1668): *Traité des influences celestes ou les merveilles de Dieu dans les cieus sont deduites. Les inventions des Astronomes pour les entendre sont expliquées: Les propositions des Astrologues Iudiciares sont démontrées fausses & pernitieuses, par toute force de raisons, d'autoritez, & d'experiences* (Rennes: Pierre Hallaudays, 1660). This is also a work that combines the exposition of the astrological doctrine followed by its criticism. As a defender of a mechanistic view of nature, François considers that factors such as constitution and education override any kind of celestial influence. François uses the term 'astromancy' to designate astrology immediately placing it in the realm of simple divination and setting the tone of his anti-astrology discourse. The first part of the book presents a discussion of celestial influence, followed by a second which offers an exposition of the principles of astrology and their refutation. The third part named 'Universal refutation of the principle of astromancy' continues the disproof of astrology from the perspective of other areas of knowledge such as medicine, chemistry, moral, and astronomy, as well as divine and human authority, and experience. See Drévilion, *Lire et Écrire l'avenir*, 60–61.

astrological principles, both theoretical and practical. In some cases, there is even a clear display of intellectual dishonesty, as they attack astrology with arguments that they must know are erroneous because either they have been rebutted by astrologers for centuries, or they make no sense within the astrological doctrine itself. For example, Pereira's argument that the stars should have more importance than the planets due to their size, is easily dismissible by the different nature of the two types of heavenly bodies; the planets are the moving parts of the astrological system and thus mark the changes in the heavens that are then interpreted by the astrologers; the fixed stars on the other hand, having no visible motion serve only as markers and thus have a different kind of influence. It is also noticeable that the very arguments presented by astrologers to defend their practice from less educated practitioners are often misleadingly used to attack astrology. Indeed, almost all astrologers endeavour to distance themselves from uneducated practitioners who make simplistic and often erroneous astrological judgements; this blunt and unwise use of astrological knowledge (common in more popular literature) is in turn presented by anti-astrological authors as the proof of astrology's erroneous nature. Likewise, they sometimes pick up the debates within astrological theory and practice (which occur naturally in any form of knowledge) and distort them exaggeratedly to wedge doubts as to astrology's efficacy. An example of this is the discussion on the methods for calculating the celestial houses: by this time this was a purely academical debate, and by no means a major problem, as the astrologers used almost unanimously the Rational method proposed by Regiomontanus.

This strange mixture of erudite discussion as to the nature and functioning of astrology, with very simplistic argumentation against it make some of these treatises strange, and sometimes even nonsensical for the reader educated in astrology. This could explain why many astrologers simply refute them by stating that the authors knew nothing of astrology, as for most cases that is what their argumentation suggests. Whatever may be their case, these Jesuit anti-astrological works played a crucial role in the change of the status of astrology in the early modern map of knowledge by keeping alive the Piconian style of critique during the seventeenth century.



Chapter 6. Jesuits accepting astrology

Regardless of all the objections raised against astrology, the topic was not debated only by those against it. Setting aside the numerous texts defending astrology published by its practitioners, also many theology texts debated the place of astrology and its practice within Christian faith and presented their opinions with a more neutral or even favourable stand. Again, in this the Jesuits were not the exception.

Of the texts addressed above, Pereira and Del Rio's are those which present a stronger theological argumentation. They are grounded on the discussion of the matter of divination which then moves to astrology as one of its forms. However, a difference in posture is noticeable in both texts. From the same corpus of theological debate two different attitudes emerge: Pereira's, who denies any possibilities for the use of astrology, and Del Rio's, which despite being mostly critical, distinguishes a licit form of astrology which can be lawfully practiced by a Christian. As astrology was an integral part of natural philosophy and the mathematical sciences, the latter attitude is not surprisingly the most common. The very bull by Sixtus V, which came before both texts, clearly allowed astrology as long as it was practiced within the proper settings of compatibility with Christian faith. Therefore, some theologians were more inclusive of astrology and intensely debated how much of it could it be practiced considering the strictures set out by the bull. Of particular concern was the practice of astrology when it came to nativities and thus the question of how much an astrologer could predict from the birth of a human being without interfering in matters of free will or chance events, and not incurring in sin in the eyes of the Church. This is extensively debated by several Jesuit theologians.

Francisco Suárez on astrology

One of the most relevant examples is that of Francisco Suárez (1548-1617), one of the leading Jesuit philosophers and theologians of this period. Born in Granada, Suárez was a highly considered figure of his time, having written influential works on metaphysics and law. Schooled in Salamanca he was a professor in several colleges in Spain, in Rome and in the later part of his life in Coimbra.

Suárez discusses astrology in his work *Opus de virtute, et statu religionis* (Coimbra, 1608), second volume, book two, *De Superstitione*, chapter eleven, 'How far extends the prohibition to make a judgement about hidden or future things by the configuration of the

celestial bodies' ('Quousque se extendat prohibitio ferendi iudicium de rebus occultis vel futuris per astrorum constellationes').¹⁴⁵ The argumentation is divided into 31 items.

He begins by addressing the fact that not every prediction made from the stars is illicit, as the law of the Church permits some of them. The reason being that the celestial bodies are natural causes and produce effects in the inferior, sublunary bodies. But as the celestial bodies are not the only causes in action in the lower spheres, and all these causes interact or are somehow dependent on each other, the action of the stars is not always effective because it can be hindered or subject to interference. Thus, even considering the great power of the stars in the production of effects, due to these other interactions these effects cannot be known exclusively from the celestial bodies, at least not with any certainty.

Then, Suárez defines astrology as double, 'one called natural, the other judicial' (una dicitur naturalis, altera iudiciaria).¹⁴⁶ The first, he says 'obtains the name natural astrology from astronomy, the latter retains the name astrology. Of astronomy there is no question; for it is clear that it is legitimate, just as is philosophy, of which it is a part'.¹⁴⁷ He then distinguishes two functions in astronomy: the first is to 'know the nature, properties of the celestial bodies, from their long-observed effects.'¹⁴⁸ This includes the knowledge of the number of stars, their size, speed, movement and aspects from which are to 'be observed or conjectured facts' ('facta conspiciuntur aut coniectantur'). The second function of astronomy is from the study developed in it is first function to predict events happening in the heavens such as eclipses, aspects, lunations and annual revolutions. And of these he says:

... and in these things, by itself, there is no moral flaw. Indeed, the investigation is in itself honest and useful, because it proceeds from natural principles, and brings to the mind a quite noble objective, and that foreknowledge can be useful for directing exterior corporeal actions by human providence.¹⁴⁹

Suárez then states that in astronomy it is easy to make errors, as the human mind has not enough capability to obtain such high knowledge. Thus, astronomy is very uncertain and only the virtue of a few stars is known by natural investigation. As there are many stars it becomes difficult to

¹⁴⁵ Francisco Suárez, *Opus de Virtute et Statu Religionis* (Coimbra: Pedro Crasbeeck, 1608).

¹⁴⁶ Here Suárez following the standard for late sixteenth century theological texts, equates astronomy with the adjective natural and astrology with judicial. As noted in Part I, this is an example of the differences of terminology in theological texts of this period.

¹⁴⁷ Sed prior astrologia naturalis nomen astronomiae obtinuit, posterior astrologiae nomen retinuit, quamvis de se generalius esse videatur. De astronomia ergo nulla est quaestio; constat enim esse licitam, sicut est philosophia, cujus illa est pars. Suárez, *Opus de Virtute et Statu Religionis*, 568, item 2.

¹⁴⁸ ... cognoscendi naturam, proprietatesque astrorum, ex effectibus eorum diu observatis. Suárez, 568, item 2.

¹⁴⁹ ... et in his omnibus per se nullum est vitium morale; imo est inquisitio per se honesta et utilis, quia ex principiis naturalibus procedit, et perficit mentem circa objectum satis nobile, et ad dirigendas exteriores actiones corporales per humanam providentiam potest esse utilis illa praecognitio. Suárez, 568, item 2.

isolate the effects of one over the others. However, he says, this does not completely impede knowledge, as this can be obtained by probable conjecture after much experience and observation, but never as a definite judgement (*'Potest tamen fieri in his probabilis conjectura, post multam experientiam et observationem, non tamen certum iudicium'*). Those who exceed this, by claiming as certain that which is probable, display imprudence and audacity. Indeed, he clarifies, when predictions concern the movement of the stars themselves, they are an assured knowledge, unless an error of calculation is made. However, when predictions derive from the qualities of the stars, the uncertainty is much greater, and they should be handled with the most care.

The lawfulness of astrological predictions must then depend on the type of effects which are being predicted. These can be natural and necessary, or contingent and fortuitous by means of natural causes, or they can be free or contingent dependent directly or indirectly from a free cause. Additionally, they can be predicted in general or in particular according to circumstances. Of all these, the natural and necessary effects present no dilemma. It is the contingent effects which must be dealt with attentively. Thus, taking as a base Sixtus's bull, Suárez states that the prediction of natural effects from the celestial bodies is not a bad thing, nor forbidden. In these, people can sin by excess in its use and through credulity, but this is not the same as the sin of divination. This is only incurred by using the stars to investigate contingent futures and secret things. Moreover, law restricts judicial practice to matters of navigation, agriculture and medical things, as these use the observation of the celestial bodies' natural effects. Thus considered, astronomy and natural astrology are very useful arts for humanity.

In any case, Suárez emphasizes that the knowledge obtained through the stars is always very uncertain to humans. Not only is it difficult to know the different qualities and properties of the stars, as their effects arise from a multitude of combinations such as that of planets and fixed stars, but also, they can suffer interference from material causes such as the state of the air, the water and the earth. Moreover, wrong things have been predicted even by men proficient in this science. Therefore, prudence must be used to acknowledge how much certainty can be inferred from them. Thus, he states that:

Therefore, when the prediction of such effects is made prudently, it should not be completely definite, but with limitations; so, for example, celestial influences indicate serenity or rain; or in another form: sterility or plague threaten or can be much feared. Sometimes, however, one commonly knows by experience, that such effects frequently happen from such causes, and are rarely impeded; and thus, they can be more definitely predicted, but those words will always adopt a philosophical sense; and that especially

happens, when not only are the celestial configurations considered, but also other near signs in the elements or other natural effects, and such are usually nautical and medical predictions, or similar.¹⁵⁰

Suárez is thus considering the limitation of astrological prediction resulting from its very concept, which concludes that the effects of the stars cannot be known to humans with enough certainty to allow a definite judgement. There are always, however, those who step over these boundaries. Excluding the more serious matters of sin by divination, there are also to be considered in this regard sins against the truth. These happen when even things predicted from natural causes are presented too absolutely or with too much certainty, which is reckless and irresponsible. Here there is not necessarily a pact with the devil as in the case of divination, but vanity and lack of consideration. As these kinds of statement can be (and usually are) harmful to others or to the public in general, they can also be considered in the one hand a sin against charity, and on the other against justice, as one has the obligation to avoid them. Here, the discussion is not on how astrology works, nor on how much it should work, but on morals and ethics. It addresses how the knowledge obtained in astrological prediction is being used: either in a prudent and considerate manner, or with recklessness, vanity and without any consideration for its effects on others.

Suárez also addresses more practical concerns, namely the extent to which predictions regarding human affairs can be made, given the restrictions posed by the bull. This is a particular important section because it presents basic arguments for the practice of astrology within a Christian context. Thus, he declares that:

... it is not evil in itself, neither universally forbidden, out of the configuration of the stars, observing the nativity of a child, to conjecture his temperament and from it future natural inclinations, and proneness to anger or gentleness, and to the study of this or that, and similar; although it is true that to predict excessively in universal as well as certainty in probabilities, is foolish, and is not without some fault.¹⁵¹

In this he is following the teachings of Thomas Aquinas, ‘who others follow’ (*quem alii sequuntur*), and who considers inclinations as a natural effect:

¹⁵⁰ Quocirca, ut praedictio talium effectuum prudenter fieret, non deberet esse omnino absoluta, sed cum limitatione; ut verbi gratia: Influentiae coelestes indicant serenitatem aut pluviam; vel sub hac forma: Sterilitas, aut pestis imminet, aut valde timeri potest. Interdum vero solet experientia constare, frequentius evenire tales effectus ex talibus causis, raro autem impedi; et tunc magis possunt absolute praedici, nam illa verba semper patiuntur philosophicum sensum; idque maxime contingit, quando non solum constellationes coelestes, sed etiam aliqua proxima signa in elementis vel aliis effectibus naturalibus considerantur, et tales solent esse praedictiones nauticae et medicae, ac similes. Suárez, 570, item 6.

¹⁵¹ ... non est per se malum, nec universaliter prohibitum, ex stellarum constellatione, observata pueri nativitate, conjectare temperamentum ejus, et ex illo naturalem inclinationem futuram, et propensionem ad iram vel mansuetudinem, et ad haec vel illa studia, et similia; haec vero etiam in universali tanquam certa vel nimium probabilia praedicere, stultum est, et sine aliqua culpa non fit. Suárez, 570, item 7.

... as the temperament of the human body ensues from natural causes; so probably it can be trusted that celestial influences have over it a great power; therefore to conjecture such effects from them is not in itself bad: because it does neither contain an implicit pact [with the devil], nor is it based on the stars as pure signs, but [on the stars] as causes; neither, indeed, is in itself anything bad, as is obvious; therefore for that reason it is not itself an evil: nor does it has been found by any positive law condemned. It is also easy to be persuaded by the second part of the assertion that concerns the natural propensity and inclination of human beings to such and such affections, and consequently to such and such studies, for this inclination is to a large extent founded on the natural temperament and complexion of the body; therefore, since it is possible to conjecture about its temperament, so it can this inclination.¹⁵²

Suárez also calls attention to the uncertainty of these predictions. These should always be considered as probable but not certain, as ‘so is generally perceived by the Church Fathers and theologians, and from experts in astrology, who are more prudent’ (*‘Ita sentiunt communiter Patres et Theologi, et ex peritis in astrologia, qui prudentiores sunt’*). Once more he places the celestial influences within a larger network of influences that must be taken into account:

First, because the qualities and conditions of the thing to be engendered depend more on the dispositions of the matter from which it is to be produced, and from the effectiveness of the nearby active force, than from the influence or the heavens, therefore the future complexion, temperament, or inclination of the engendered child cannot be derived solely from the aspects of the planets which came together at the time of birth. The premise is by itself evident, these intrinsic and nearby causes, are more particular and determine the universal influences.¹⁵³

He discusses the interference of material causes in the generation of human beings, speaking of the effect of the parents’ complexion: the strength of the father, as well as of the mother’s health, nutrition and temperance while carrying the child in her womb. As many of these factors are not considered, predictions cannot be made with absolute certainty but only as probabilities. Suárez further discusses a strong point of debate: the matter of the choice between the moment of birth and that of conception; both being uncertain or difficult to know with exactitude. He also addresses the issue of nutrition during the nine months of pregnancy which will strongly influence the child and are often disregarded by astrologers, leading to weak conjectures. One

¹⁵² ... temperamentum enim corporis humani a causis naturalibus procedit; ergo verisimile credi potest, magnam vim in eo habere coelestes influentias; ergo ex illis conjectare hujusmodi effectum, non est per se malum: quia nec pactum implicitum continet, nec fundatur in astris, ut in puris signis, sed ut in causis, nec etiam est de se alicui noxium, ut constat; ergo non est cur per se malum sit: nec etiam aliquo jure positivo damnatum invenitur. Hinc etiam facile persuadetur secunda pars assertionis, quae est de inclinatione et propensione naturali hominis ad hos vel illos affectus, et consequenter ad haec vel illa studia; nam haec inclinatio magna ex parte fundatur in naturali corporis temperamento et complexione; ergo sicut conjectari potest temperamentum, ita et haec inclinatio. Suárez, 570–71, item 8.

¹⁵³ Primo, quia qualitates et conditiones rei generandae magis pendent ex dispositionibus materiae ex qua producenda est, et ex efficacia proximae virtutis activae, quam ex influentia coelorum; ergo ex solo aspectu siderum, qui hora nativitatis concurrunt, non potest satis colligi futura complexio, temperies, aut inclinatio prolis genitae. Antecedens est per se evidens, quia istae causae intrinsecae vel propinquiores, sunt magis propriae, et determinant influxus universales. Suárez, 571, item 9.

of its main points is to demonstrate that beyond the stars there are other noticeable influences, of material nature, which affect the infant and must be considered.

The next items of the text are mostly focused on the penalties incurred by those who misuse astrology and use it superstitiously.¹⁵⁴ He addresses several levels of sin and presents the arguments of various church authorities on this matter.¹⁵⁵ The most severe penalties go, of course, to those who dare to make judgements and predictions of future contingent events and those dependent on free will, or on divine will, as ‘to predict contingent futures which are dependent on freedom, from the heavenly signs and celestial bodies is a sin of superstition and by all law severely forbidden.’¹⁵⁶ It is also forbidden to inquire about hidden or secret matters, which can only be known through astrology by the agency of the devil. Following the ordinance of the bull, Suárez states that even those who state things on these matters as only being probable and not as certain, act superstitiously and commit a serious fault of superstitious divination. As this knowledge cannot be obtained from the stars plausibly, those who do it tacitly intend to acquire such knowledge from the devil. However, some level of conjecture is allowed under different conditions, and in his closing of this chapter he states:

It is otherwise when conjecture is taken not only from the stars alone, but from other circumstances and particular causes, as from the person’s temperament, from other actions of his and similar circumstances, for such observation is not divination but providence; hence, if among other conjectures are considered also the aspects of the stars, to the extent that it is possible to undertake, it does not belong to superstition, but to natural astrology which is not condemned, as we said.¹⁵⁷

Thus, at the very end of his argumentation, he underlines an idea which he recurrently discusses in the text: even within the strictures of the law it is possible to make some conjecture on future things, as long as it is achieved by taking into account other factors, that is, other more material and nearer causes that support and reinforce the probabilities indicated by the celestial configurations. Under this precept all judgements belong to natural astrology.

The purpose of Suárez’ discussion is to determine proper limits for astrological practice, but not to deny it. His reasonings seek to establish a set of natural restrictions, which configure

¹⁵⁴ Along items 13 to 30, Suárez, 572–81.

¹⁵⁵ Besides Aquinas and Sixtus V he refers to several others such as Martin Del Rio, Thomas Cajetan, Augustine, Panormitanus (Nicolò de Tudeschi), Martin of Braga, Bonaventure, Juan Andrés, Anastasius Sinaïta, Gregory Nazianzen, Anastasius the Librarian, Cyril of Jerusalem, Origenes, and Albert the Great, among others.

¹⁵⁶ ... predicere futura contingentia, quae ex libertate dependent, ex signis caeli, & astrorum, superstitionis peccatum est omni iure gravissime prohibitum. Suárez, *Opus de Virtute et Statu Religionis*, 572, item 13.

¹⁵⁷ Secus autem esset, quando non ex astris solis, sed ex aliis circumstantiis, et causis particularibus sumeretur conjectura, ut ex temperamento personae, ex aliis actibus ejus, et similibus circumstantiis; nam talis observatio non est divinatio, sed providentia; unde si inter alias conjecturas consideretur etiam aspectus astrorum, quatenus aliquid conducere potest, id non pertinet ad superstitionem, sed ad naturalem astrologiam, quae non est damnata, ut diximus. Suárez, 580–81, item 31.

not only the principles behind celestial influence, but also the extent to which this influence may be taken into account. To this he adjoins a code of Christian moral conduct which must be considered when practicing astrology. These turned out to be, as will become clear in the next sections, an important guideline for Jesuit students and practitioners of astrology.

Further examples

Following the same Thomist principles debated by Suárez, other Jesuit theologians also presented a more tolerant position towards astrology. An example is Tomás Sánchez (1550-1610), who discusses the licit and illicit parts of astrology in his *Opus morale in praecepta Decalogi* (Lyon, 1615), book two, chapter 38, ‘De divinatione per astra, absque expresso pacto cum daemone’.¹⁵⁸ In general, he follows the same stance as Suárez, whom he quotes frequently. He equally identifies astrology as being double, one part natural, the other judicial, the first dealing with the natural effects of the celestial bodies, while the second with prognostication of future chance events, or those depending on free will, and also past or future occult events.¹⁵⁹ His main views are that:

Natural astrology which prognosticates that which naturally befalls from the configurations of the stars, is licit. Of this no one has doubts. And similarly, it is not illicit as far as it predicts from the aspects of the stars, considering the moment of birth, the temperament and inclinations of men. To the extension this knowledge can be taken. (...) Nor is this judgement condemned by Sixtus V in his motion against the astrologers, but only when things are predicted regarding chance events and those depending on free will.¹⁶⁰

Judicial astrology that predicts things dependent on free will, or chance events, is superstitious and forbidden by all law, and it predicts by a tacit pact with the devil; and accordingly, its use is a mortal [sin], as when it predicts the condition of life, matrimony or other conditions, children, wealth, enmities, death, etc. And so it is forbidden by all law.¹⁶¹

He also discusses the sins incurred in the practice of illicit astrology, in the same manner as Suárez. There are some differences between the two authors regarding the severity of the

¹⁵⁸ Tomás Sánchez, *Opus morale in praecepta Decalogi* (Lyon: Horace Cardon, 1615).

¹⁵⁹ Duplex est Astrologia, quaedam est naturalis, quae medicinae, agriculturae, & navigationi plurimum conducit. Ea autem est, quae ex situ, cursu motuque astrorum, ea quae naturaliter contingunt, coniectat, ut eclipsim, pluvias, grandines, ventos, &c. Altera est iudiciaria, quae ex astris coniectat futuros? eventos fortuitos, ac ex libero arbitrio pendentes, praeterita etiam & presentia prorsus occulta. Sánchez, 294.

¹⁶⁰ Astrologia naturalis coniectans, quae naturaliter contingunt ex astrorum aspectu, est licita. De qua re nemo dubitat. Et similiter non est illicita, quatenus coniectare ex astrorum aspectu, considerando nativitatis punctum, temperamenta & propensiones hominis. Quod scientia haec ad id se extendere possit. (...) Nec hoc iudicium damnatur in motu proprio Sixti V contra Astrologos, sed tantum quando casus fortuiti aut pendentes à libero arbitrio praedicuntur. Sánchez, 294. Again he is using the a natural-judicial division with is not used by the mathematicians and astronomers nor by the bull, but seems to be applied in theological texts.

¹⁶¹ Astrologia iudiciaria praedicens pendencia ex libero arbitrio, aut casus fortuitos, est superstitiosa, & omni iure prohibita, ac tacito cum daemone pacto, ea divinat; ac proinde usus illus est mortalis. Ut cum praedicat conditionem vitae, matrimonium, aut alium statum, liberos, divitias, inimicitias, mortem, &c. Et ideo est prohibita omni iure. Sánchez, 295.

penalties one might incur by making conjectures in matters of free will and chance events, Sánchez being somewhat harsher in this matter than Suárez.

Similar discussions of astrology, with different levels of acceptance, can be found in the works of other Jesuits, though none show the same level of attention towards astrology that Suárez displays. Gregorio de Valencia (c.1550-1603), for example, discusses astrology and the extent of celestial influence in his *Commentariorum theologicorum tomi quatuor* (Ingolstadt, 1592), tome two, disputation two, question four, point four, but his focus is on the limitations of celestial influence on the human being.¹⁶² Another author is Juan de Salas (1553-1612), who debates this topic in treatise five, disputation two of his *In primam secundae diui Thomae* (Barcelona, 1607-1609), where he takes a stricter and more critical stance on astrology.¹⁶³

Close to this end of the spectrum is perhaps the Jesuit theologian Adam Tanner (1572-1632), professor at the University of Ingolstadt and later in Vienna, and a known figure in the fight against the protestant reformers. In 1615 he wrote a small book, *Astrologia Sacra* (Ingolstadt, 1615) where he discusses the place of astronomy and astrology in Christian theology.¹⁶⁴ He divides his discussion into five questions or chapters where discusses the recent astronomical discoveries made by with the telescope, such as the sunspots and the phases of Venus. In terms of astrology, the text does not extend much into the of practical aspects. Most of Tanner's debate falls within the common theoretical and theological arguments used in when discussing astrological prediction. As all authors, he considers completely unacceptable any prediction in which the free will of its agents is disrespected. He considers possible and allowable by the Church two types of predictions: those that do not involve at all human free will, as the forecasting of weather and agriculture; and those relating to the natural agency of the celestial bodies in human being as, for example, the selection of a favourable moment for medical operations. However, Tanner considers these too unreliable due to the imperfection of human knowledge. Therefore, his position towards astrology in general is very dubious. Although he accepts astrological prediction, he considers that the only truly sanctioned prognostication is that of the movements of the celestial bodies, that is astronomy. Tanner's book is seldomly quoted and did not have the same impact as the above-mentioned authors, either those for or against astrology.

¹⁶² Gregorio de Valencia, *Commentariorum theologicorum tomi quatuor. In quibus omnes materiae, quae continentur in Summa theologica Diui Thomae Aquinatis, ordine explicantur.* (Ingolstadt: David Sartorius, 1592).

¹⁶³ Juan de Salas, *In primam secundae diui Thomae* (Barcelona: Gabrielis Graells & Gerardi Dotil, 1607).

¹⁶⁴ Adam Tanner, *Astrologia Sacra: hoc est, orationes et quaestiones quinque: quibus explicatur, an et qua ratione fas sit homini christiano, de rebus occultis, praesertim futuris, ex astris iudicium ferre* (Ingolstadt: Typographeo Ederiano, 1615).

Another notable mention is that of Roberto Bellarmino (1542-1621), the prominent Jesuit Cardinal, known for his participation in the trial of Giordano Bruno and in the Galileo affair.¹⁶⁵ Bellarmino's views on astrology are expressed in a set of papers of his lectures on Aquinas's *Summa Theologica*, known as the *Lectiones Lovanienses*. Neil Tarrant has shown that in these papers Bellarmine follows a stricter interpretation of Aquinas's writings that limits greatly the theory of influence.¹⁶⁶ As a result Bellarmine conceded a limited prediction of physical effects through astrology (i.e. natural astrology), but none whatsoever on chance events or human actions. Tarrant suggests as a possible root for this posture Pico's *Disputationes* which would be in line with Benito Pereira's *Adversus fallaces* and with the *Biblioteca Selecta*.

The *Cursus Conimbricensis*

This study could not be complete without mentioning the well-known and highly influential *Cursus Conimbricensis*. This eight-volume commentary to the works of Aristotle was published from 1592 and 1606 as a complement to the Jesuit philosophy course in the College of Coimbra and in the University of Évora, under the title of *Commentarii Collegii Conimbricensis Societatis Jesu*. Due to its comprehensive approach to Aristotle's works it became a standard text in Jesuit, as well as in non-Jesuit and Protestant institutions.¹⁶⁷

Astrology is debated in the second volume which contains the commentary to Aristotle's *De Caelo*, and in the context of celestial influence.¹⁶⁸ A complete study of the text, is outside the scope of the current research, since its focus is to study the Jesuit practice of astrology and not its philosophical stand. However, it is important to make some remarks on its contents. Differently from the *Biblioteca Selecta*, the *Conimbricenses* provide a more extensive debate of astrology in the setting of natural philosophy. Their position on astrology is very much the same as that of the previous authors. The text discusses the standard arguments of the Church authorities, quoting many authors, of which Augustine and Aquinas, stand, as usual, as the main sources. It debates the status of astrology as a science, and its claim to forecast future events, concluding that astrology can only make prognostications based on natural causes. These are

¹⁶⁵ A biography of Roberto Bellarmino can be found in James Brodrick, *The Life and Work of Blessed Robert Francis Cardinal Bellarmine, S. J., 1542-1621*, 2 vols (London: Burns, Oates and Washbourne, Ltd., 1928). For a study on Roberto Bellarmino's impact on early modern religion and culture, see Stefania Tutino, *Empire of Souls: Robert Bellarmine and the Christian Commonwealth* (Oxford: Oxford University Press, 2010). His role in the Galileo affair is discussed in Richard J. Blackwell, *Galileo, Bellarmine, and the Bible* (University of Notre Dame Press, 1991); and Peter Godman, *The Saint as Censor: Robert Bellarmine Between Inquisition and Index* (Brill, 2000).

¹⁶⁶ Tarrant, 'Reconstructing Thomist Astrology'.

¹⁶⁷ For an overview of this work see Cristiano Casalini, *The Cursus Conimbricensis and the Education at the College of Arts*, trans. Luana Salvarani (London; New York: Routledge, 2017).

¹⁶⁸ *Commentarii Collegii Conimbricensis Societatis Jesu in quatuor libros De Coelo Aristotelis Stagiritae* (Lisboa: Simão Lopes, 1593), 155–200 (particularly Quaestio IX, 186–200).

acceptable as long as they are not stated as being certain and do not infringe on free will and chance events. The usual historical and astronomical debates are presented, and Pico's *Disputationes* are mentioned on several occasions. The debate on the legitimacy of astrology is almost entirely centred on nativities, which are rejected, and only incidental references are made to other astrological practices.

Since it is a philosophical commentary, it never offers a technical debate on astrology. It does not discuss its doctrine or provide a clear definition of its object and divisions. The few examples of astrology mentioned are simplistic, serving merely as a support for the argumentation. Its strong point is the comprehensive presentation of the philosophical discussion, but it adds little to the debate. It is not negative towards astrology, but it is strict, keeping it constrained within the accepted natural Thomistic confines.

Standing in ambiguity

The emphasis usually placed by historiography on the Jesuit negative views of astrology can be explained, at least partially, by the fact that as members of a Catholic order the Jesuits actively implemented the restrictions on astrology imposed by the Church's law; these were very limitative towards astrology, and critical almost to the point of rejection, as observed above in the works of its detractors. This idea is further consolidated by works such as Possevino's *Bibliotheca selecta* and other similar texts where judicial astrology is all but rejected. Another fact that strengthens this seeming anti-astrological posture is that, unlike the case of the critical texts, no books solely dedicated to the defence of astrology were apparently published by Jesuits. Thus, any positive views of astrology were mixed with, and thus diluted, in other debates and expositions, making them less visible and thus less present in historiographical debate. However, Jesuits commonly followed the theological views of Thomas Aquinas, who recognized a significant level of influence of the celestial bodies on human passions. For these reasons it would be expected to find room for astrology among Jesuit thinkers, at least in a general way, since this knowledge investigates celestial influence. This is clearly demonstrated in the texts by Suárez and Sanchez, who argue for a practice of a useful and morally sound astrology. Even sterner views such as that of Bellarmine, or the philosophical debates in the *Cursus Conimbricensis*, allowed for the possibility of natural predictions. Therefore, even considering the strictures of the Church, it is not so strange to find acceptance and even some level of practice of astrology among the members of the Society. This study and practice of astrology is nonetheless constricted and trimmed to accommodate Christian believe. Thus,

practices that bluntly go against any notion of free will are outright excluded and despised. Any ability to forecast future contingent things is immediately seen as the labour of demons, which are either employed by the astrologer, or are taking advantage of the unwilling student of the stars who invited their action through his desire to know forbidden futures. Nonetheless, all the natural forms of astrology are accepted leaving ample room for several practices, including those concerning human behavioural tendencies. Therefore, contrarily to what is commonly perceived, the knowledge and practice of astrology is not *a priori* incompatible, and thus not necessarily excluded, from the Jesuit *ethos*.

Having addressed the anti-astrological publications and the theological texts of Jesuit authorship, the placement of astrology will now be studied in its usual home context, that of the mathematical and astronomical sciences.



Chapter 7. Astrology in Jesuit Science

It must be highlighted again that, despite the many religious objections and restrictions to its practice as well as the vigorous arguments of its detractors, astrology was above all a part of accepted knowledge. It was inextricably connected to astronomy and in the larger context to the mathematical sciences. Therefore, the next step to further understand the relation of the Jesuits to astrology, their position towards the sciences and mathematics must be examined more attentively.

The Ratio Studiorum, mathematics and astrology

Jesuit mathematics and its teaching is a subject that has been the object of several in-depth studies and extensive historical research.¹⁶⁹ Summarily speaking, the first notice of teachings of mathematics within the Society can be placed in the College of Messina, according to a document written by Jeronimo Nadal in 1548 stating the essential basis for the teaching of the discipline.¹⁷⁰ These were strongly influenced by the work of Francesco Maurolico (1494-1575), who had set up the study at the Jesuit College of Messina. In the College of Rome, Baltasar Torres (1518-1561) was in charge of the teaching of mathematics from 1553 to 1560,¹⁷¹ followed for a short period, 1561 to 1563 by Adalbert Baucek (1538-1571), and then Christopher Clavius (1538-1612), who took over the teaching of mathematics sometime around

¹⁶⁹ Among many others: François de Dainville, *L'éducation des jésuites, XVIe-XVIII siècles*, ed. Marie-Madeleine Compère and Institut national de recherche pédagogique. Service d'histoire de l'éducation (Paris, France: Éd. de Minuit, 1978); James M. Lattis, *Between Copernicus and Galileo: Christoph Clavius and the Collapse of Ptolemaic Cosmology* (Chicago: University of Chicago Press, 1994); Luce Giard, *Les Jésuites à la Renaissance: système éducatif et production du savoir* (Paris: Presses Universitaires de France, 1995); Ugo Baldini, *Saggi sulla cultura della Compagnia di Gesù (secoli XVI-XVIII)* (Padova: CLEUP, 2000); Charles H. Lohr, 'Jesuit Aristotelianism and Sixteenth-Century Metaphysics', in *Paradosis. Studies in Memory of Edwin A. Quain* (New York: Fordham University Press, 1976), 203–20; Frederick A. Homann, ed., *Church, Culture and Curriculum - Theology and Mathematics in the Jesuit Ratio Studiorum* (Philadelphia: Saint Joseph's University Press, 1999); Antonella Romano, *La Contre-Réforme Mathématique. Constitution et diffusion d'une culture mathématique jésuite à la Renaissance (1540-1640)* (Roma: École française de Rome, 1999); Mordechai Feingold, *The New Science and Jesuit Science: Seventeenth Century Perspectives* (Dordrecht; London: Springer, 2011); Mordechai Feingold, ed., *Jesuit Science and the Republic of Letters* (Cambridge, Mass.; London: MIT Press, 2003); Ugo Baldini, *Legem impone subactis. Studi su filosofia e scienza dei gesuiti in Italia* (Roma: Bulzoni, 2006); Agustín Udías, *Jesuit Contribution to Science: A History* (Cham: Springer International Publishing, 2015); Mark A. Waddell, *Jesuit Science and the End of Nature's Secrets* (Burlington: Ashgate, 2015).

¹⁷⁰ In an extraordinary instance, he will read on the mathematics judged appropriate by the Rector at the right time. First several books of Euclid as long as they are familiar with demonstrations, then the *Practica arithmetica* by Oronce and his Sphere, the *Astrolabium* by Stöffler and the *Theorica* of Purbach. (Praeleget extra ordinem mathematicen, quo tempore commodissimum esse ab ipso Rectore censebitur. Primum aliquot libros Euclidis donec assuescant demonstrationibus. Deinde practicam arithmeticae Orontii et eiusdem sphaeram, astrolabium Stöfflerini et theoricas Purbachii). Ladislaus Lukács, *Monumenta paedagogica Societatis Iesu (1540-1556)*, vol. 1 (Roma: Monumenta Historica Soc. Iesu, 1965), 26.

¹⁷¹ On the proposals of Torres, see Jesús Luis Paradinas Fuentes, 'Las matemáticas en la Ratio Studiorum de los Jesuitas', *Llull: revista de la Sociedad Española de Historia de las Ciencias* 35 (2012): 138–39.

1563 and later worked to include it in the *Ratio Studiorum*, the master guidelines for the Order's teaching programme.¹⁷²

The inclusion of mathematics in the Society's first programs was not without controversy. In the early years there was some contempt towards the college's students of mathematics, as there was ongoing discussion regarding the placement and importance of mathematics as a true means of obtaining knowledge of nature. The matter relied on the conception that mathematics could not provide as powerful enough demonstration as those provided by Aristotelian physics.¹⁷³ An argument ensued regarding the methods of proof between natural philosophy and mathematics, which was highly debated in the Collegio Romano, in the last decade of the sixteenth century, particularly by Benito Pereira and Christopher Clavius.¹⁷⁴ If mathematics was a sensitive topic when the *Ratio* was first being devised, astrology was an even more delicate matter. Indeed, one of the reasons for the dismissal of mathematics was its association with predictions of the future through astrology, a very sensitive topic at this time, as discussed above. One facet of this problem was the Molinist conception of the interaction of divine grace and free will, which make any notion of astrological fatalism objectionable for most Jesuits.¹⁷⁵ The other was headed by the prohibitions of the Index and Pope Sixtus's bull, furthered by Benito Pereira's text. The latter, as noted before, not only questioned the judicial facet of astrology but also undermined the ability of the mathematician and astronomer to understand and measure the heavens by means of the senses and the instruments.

In order to make mathematical studies acceptable many authors of this period, in particular the Jesuits, felt necessary to draw a very clear line between the study of mathematics and the more suspicious parts of astrology. This was taken into consideration very early on, while the *Ratio* was being devised. Some years before these discussions and regulations began to emerge, Jerónimo Nadal, the chief organizer of the Jesuit studies had already presented a negative view on astrology when addressing the teaching of mathematics and astronomy in the Disposition and Order of the General Studies of 1552:

The third lesson every year will dwell on astrology [here meaning the science of the stars], beginning with the theory of the planets; it can be always conjugated with something from the Great Construction [Almagest] of Ptolemy, or at least the Epitome

¹⁷² For an account of this period see: Ugo Baldini, 'The Academy of Mathematics of the Collegio Romano from 1553 to 1612', in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, Mass.; London: MIT Press, 2003), 47–98.

¹⁷³ On this topic see: Gorman, 'The Scientific Counter-Revolution'.

¹⁷⁴ For an extended discussion on this topic refer to Paolo Mancosu, *Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century* (New York: Oxford University Press, 1996); Gorman, 'The Scientific Counter-Revolution'.

¹⁷⁵ On the influence on Luis de Molina's ideas on mathematics, see: Gorman, 'The Scientific Counter-Revolution', 50–55.

of John of Montereio [Regiomontanus], the Alfonsine tables, [Stöffler's book on] the astrolabe, etc. (...) The mathematician, however, cannot interpret judicial astronomy, as all his dealings consist in speculative mathematics.¹⁷⁶

It becomes clear from this passage that judicial astrology was *ab initio* excluded from the curriculum. Instead, theoretical mathematics was the only subject to be taught. The terms astrology and astronomy are here being used interchangeably, but despite the removal of practical astrology (judicial), it remains unclear how much of astrological theory (such as qualities of the signs and planets, aspects, celestial houses, and planetary dignities) would be included in this course. It must be kept in mind that not only were many parts of astrology still considered valid, but also the boundaries between some theoretical facets of astronomy and astrology were in many aspects undefined. For example, it is common for books of astronomy to describe the interpretative (astrological) qualities of the signs when defining the Zodiac, or to present tables with the Sign-Planet associations known as the domiciles of the planets.

Another key figure in the task of organizing the Collegio Romano, Martin de Olave (1507-1556), wrote in 1553 that:

Aside from these teachers of Aristotle there will also one who teaches (reads) mathematics and the good and useful part of astrology (the science of the stars). And they will be at the same time that the scholars of Aristotle, I mean of the course, can together experience and hear this art with the doctrine of Aristotle.¹⁷⁷

Again, the use of the word 'astrology' makes it unclear if he is referring to astronomy or to astrology. If it refers solely to astronomy, the question arises as to what extent did this teaching include topics that would fall at least within the field of theoretical astrology. The use of the wording 'good and useful part of astronomy' is in itself ambiguous. Considering Nadal's previous words, a 'bad' astrology would be of course the judicial part of the doctrine, but it does not give a precise definition regarding the licit usages of astrology. It might imply that astrology was, at least in part, included in the studies. Also, the distinction between a 'good' astrology and a 'bad' astrology, that is between natural celestial influences and superstitious assumptions, always had a fluid boundary which could vary according to each author's consideration of how far could be extended a licit astrological judgement. Therefore, without further documentary evidence, it becomes difficult to say what exactly could be taught under

¹⁷⁶ Tertia lectio singulis annis versabitur in astrologia, inchoando a theoria planetarum; poterit coniungi semper aliquid ex Magna Constructione Ptolomaei, vel saltem Epitome Ioannis de Montereio, Tabulae Alfonsi, astrolabium, etc. (...) Mathematicus vero nihil possit interpretari astronomiae iudiciariae sed totum eius negocium constet speculativis mathematicis, etc. Lukács, *Monumenta paedagogica Societatis Iesu (1540-1556)*, 1:149–50.

¹⁷⁷ Senza questi professori di Aristotele sara ancora qui lega le mathematiche et la buona et util parte di astrologia. Et sara ad hora che li scolari di Aristotele, dico del curso, possino insieme sentire et oder queste arte con la doctrina di Aristotele. Lukács, 1:166.

the wide category of ‘good astrology’. However, given the religious stance against astrology at this time, it is probably safe to assume that contents regarding any kind of astrological judgements present would be very limited, if at all present.

The mathematical study programme of the Society only took shape with the efforts of the principal figure of Jesuit mathematics, Christopher Clavius. His well-known role in Jesuit teaching needs no introduction. Not only was he the father figure of the mathematical disciplines in the Collegio Romano, but his works also became cornerstones in astronomy and mathematics for the following generations of scholars. Consequently, his relationship with astrology becomes paramount to understand its place, or lack thereof, within the Jesuit mathematical curriculum.

Clavius and astrology

The role of excluding astrology from the Jesuit mathematics curriculum fell on Christopher Clavius, as the main contributor to the mathematical programme of the *Ratio Studiorum*. Indeed, Clavius apparently chose not to include it both in the Ratio and in his various published works. The chief example is the absence of astrology in his first book, *In Sphaeram Ioannis de Sacro Bosco Commentarius* (Rome, 1570), which became a fundamental text for the Jesuit astronomical programme.¹⁷⁸ Although Sacrobosco’s work has no astrological content, it is common for the commentaries to include astrological doctrine complementary to the astronomical concepts explained in the text. Clavius’s text, however, has none. The *Commentarius* was edited several times between 1570 and 1611, still during Clavius’s lifetime, and became the foundation of teaching not only for the astronomy section of the Jesuit mathematical course, but also for many astronomers of the seventeenth century. It was highly praised by its contemporaries as one of the best commentaries on the *Sphaera*, and also by historians of science as one of the most successful.¹⁷⁹ Scholars such as Ugo Baldini and Darrel Rutkin see the exclusion of astrology from the *Commentarius* as a key moment that strongly contributed to the progressive removal of astrology from the mathematical sciences. Baldini argues that this exclusion endorsed the differentiation between astrology and astronomy, contributing to the modern configuration of the discipline.¹⁸⁰ Rutkin also reiterates the importance of this action, as it represents the removal of astrology from one of its well-

¹⁷⁸ Christopher Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius* (Roma: Apud Victorium Helianum, 1570).

¹⁷⁹ See Lattis, *Between Copernicus and Galileo*, 37.

¹⁸⁰ Christopher Clavius, *Corrispondenza*, ed. Ugo Baldini and Pier Daniele Napolitani, vol. 1 (Pisa: Università di Pisa, Dipartimento di matematica, 1992), 64.

established curricular foundations. He argues that this move was influential for the following generations of both Jesuits and non-Jesuits studying from Clavius's writings, as these students 'had no longer a place for astrology among the mathematical disciplines'.¹⁸¹ However, the continued study and practice of astrology by Jesuits, long after Clavius's death, as will be examined further on, might challenge, at least partially, the repercussions of this removal. Furthermore, Clavius's personal position regarding astrology is much more complex, as is revealed by a closer look at the introduction to the *Commentarius*.¹⁸² Rutkin, whose argument will be replicated here and expanded, presents strong evidence in this regard.¹⁸³

In the introductory chapters of the *Commentarius* Clavius defines the subject matter and speaks of the several parts of astronomy. In particular he speaks of the divisions of astronomy: 'Astronomy is divided into theoretical, that is contemplative, and practical, that is what operates and acts.'¹⁸⁴ Then, after explaining theoretical astronomy, which includes the computations of the movements of the stars and the uses of what is generally considered astronomy *per se*, he defines 'astronomia practica', which is in fact astrology:

The practical astronomy that others call judicial or prognosticatory, that is divinary, orients all these things towards the practicalities of human life, for it contemplates complexion and the natures of both the signs and the constellations and also of the planets and of the remaining stars, and it indicates which signs are hot, which cold, and which temperate, which are masculine, which feminine, and other things of this type. Again, it predicts future events in the world below from the motions of the planets and their orbs. But since many people have dared to throw in many things rashly and falsely to this part of astronomy and have wished to amplify this prognosticatory part to such an extent that it became altogether superstitious and odious, and it is justly held to be suspect by the Church, and it was condemned in a marvellous manner by Saint Augustine in his books on Christian Doctrine, therefore I deem that we will say nothing whatsoever about this subject.¹⁸⁵

¹⁸¹ Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 416.

¹⁸² As also discussed by Antonella Romano, *La Contre-Réforme Mathématique. Constitution et diffusion d'une culture mathématique jésuite à la Renaissance (1540-1640)*, 270–71, notes 185 and 186. See also Robert S. Westman, *The Copernican Question: Prognostication, Skepticism, and Celestial Order* (Berkeley: University of California Press, 2011), 204–9.

¹⁸³ Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 401–17.

¹⁸⁴ Dividitur autem Astronomia, ut et reliquae discipline, in Theoretical, id est, contemplatricem; & Practicam, hoc est, operantem & agentem. Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius*, 6.

¹⁸⁵ PRACTICA vero Astronomia, quam alii Iudiciariam, seu Prognosticam, id est, Divinatricem dicunt, omnia ista ad usum vitae humanae accomodat; Contemplatur enim complexionones, & naturas tum signorum, constellationumque, tum etiam Planetarum, reliquarumque stellarum, explicatque quaenam signa sunt calida, quae frigida, quae temperata, quae masculina, quae foeminina, & id genus alia. Rursus ex motibus orbium, & stellarum futuros euentus in hisce inferioribus praedicit. Verum quoniam huic Astronomiae parti multi multa temerarie, ac perperam ausi sunt adiicere, adeoque; hanc partem prognosticam amplificare voluerunt, ut sit iam res omnino superstitiosa, exosaeque & merito ab Ecclesia suspecta habeatur, mirumque; in modum a B. Augustino damnata in libris de Doctrina Christiana, propterea nihil omnino de ea nobis dicendum existimo. Clavius, 7 (1570 and 1581 editions), 5-6 (1585 and 1601 editions). Translation adapted from Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 406.

In this definition several important things stand out. He immediately dives into the hotspot of astrological practice: the fact that it is judiciary, since it makes judgements on the effects of the stars on Earth, and prognosticatory, since it prognosticates how things were, are and will be according to the positions of the stars. His phrasing ‘that is what they call divinatory’ immediately calls to the reader’s attention that Clavius is well aware of the problems regarding astrology and divination, but interestingly he appears to be making a subtle distinction between being divinatory and being called divinatory. He also makes a clear statement as to the uses of astrology for ‘practicalities of human life’. And following a more abstract definition of the role of astrology which is to qualify the nature and complexion of planets, signs, stars and constellations, he unquestionably states that it predicts future things ‘from the motions of the planets and their orbs’.

Until this point his discourse can be read as that of someone who accepts the premises of astrology. Indeed, he does not seem to doubt the power and efficacy of judicial astrology, nor of astrology’s claims. However, in the second part of his definition he shifts his discourse and explains that, because the predictive facet of astrology has been greatly misused, he will not address it in his book. Again, despite the critical tone of his words, he shows himself as someone who accepts astrology. He does not attack astrology itself or its fundamental principles, but those who have abused astrology and taken it beyond its rightful boundaries of prognostication; they have tainted astrology with superstition and thus made it to be ‘justly held to be suspect by the Church’. Thus, despite choosing to remove astrology from his teachings, Clavius, like many authors of his period, does not condemn astrology itself, but the ‘superstitious’ additions that make it unlawful to the Christian practice. Here his discourse is quite in tune with his contemporary and close correspondent Antonio Magini, whose wording is quite similar, as seen above. Thus, Clavius’s entire discourse is very different for those of the critics of astrology, and much closer to those who see it as a natural part of astronomy. This acceptance of the fundamental premises of astrology is evident in other parts of the introduction. Rutkin takes them as evidence that there was still room for astrology in Clavius’s view of astronomy. Given Clavius’s non-aggressive criticism of astrology, and his straightforward recognition of its judiciary and prognosticatory facets, these testimonies only reiterate his acceptance of the discipline. The most evident is his discourse in the following section on the importance of astronomy (*De praestantia astronomiae*), where, after presenting as his first argument the incorruptibility of the heavens, he gives as the second reason the undeniable action of the celestial bodies on earthly things:

Second, that the Celestial bodies are the cause of all things below, as pleases Aristotle in book one of the *Meteora*, where he says it is necessary that the lower world is connected with the superior movements since all their power is derived from there, likewise in *Physics* book 8, he asserts that everything is produced with the motion of the heavens mediating, and he does not hesitate to announce that the life of all things exists on account of that very celestial motion, again in book 2 of *De Caelo* he affirms that the heavens act on things below by the mediation of light and motion. Finally, in book 2 of *On Generation and Corruption* he testifies that, because of the motion of the Sun and the other planets in the oblique circle, that is the zodiac, there come to be generations and corruptions in these things below. And he affirms the same thing in many other places to which almost the entire multitude of philosophers are in agreement.¹⁸⁶

By positioning himself well within the Aristotelian concept of celestial influence, and considering his definition of ‘astronomia practica’, Clavius leaves plenty of room in this work for an acceptance of astrology as a standard part of the astronomical and mathematical corpus. This is further strengthened, as Rutkin points out, by his clear acceptance of the application of astrology in medicine when discussing the usefulness of astronomy (*De utilitate astronomiae*) in various disciplines such as metaphysics, natural philosophy and navigation:¹⁸⁷

But astronomy benefits medicine in such a way that Galen, the prince of physicians, warns sick people that they are not to commit themselves to the hands of physicians that were ignorant of the science of the stars, where he says that medicines offered at inappropriate times benefit little or not at all, they rather harm frequently. These times can be known by the motions of the planets that are the astronomer’s business.¹⁸⁸

From this evidence Clavius appears to be rather neutral towards the practice of astrology, in spite of his remarks concerning the ‘superstitious’ uses of astrology. In this regard he is far from the only one, as many practitioners of judicial astrology of this period would agree with him. The only antagonistic reinforcement in his arguments appears in later editions of the *Commentarius*. After 1591, the last phrase of the definition of ‘astronomia practica’ continues with a quite conventional quote of some of the critics of astrology, headed by Pico della

¹⁸⁶ Secundo, quia corpora caelestia sunt causa omnium horum inferiorum, ut placet Arist. I, Mete. ubi ait, Necesse esse mundum inferiorem superioribus lationibus continuari, ut omnis inde virtus deriuetur. Item 8. Phys. asserit, omnia produci mediante motu Caeli, ob idque motum caelestem, vitam omnium entium nuncupare non dubitavit. Rursus 2. de caelo affirmat, caelum in hoc inferiora agere mediante lumine, & motu. Postremo 2. De Gene. & corrup. testatur, propter motum Solis, et aliorum planetarum in circulo obliquo, id est, in Zodiaco, fieri generationes, & corruptiones in hisce inferioribus; Idemque plerisque aliis in locis affirmat, cui fere totus philosophorum coetus astipulatur. Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius*, 8. Adapted from the translation by Rutkin, ‘Astrology, Natural Philosophy and the History of Science, C. 1250-1700’, 413–14.

¹⁸⁷ Clavius also makes a brief comment on the usefulness of mathematics for astrology in medicine in the *Prolegomena* to *In Euclidis Elementa Geometrica* in Christopher Clavius, *Opera Mathematica*, vol. 1 (Mainz: Antonius Hierat, 1612), 4. He stats that ‘Indeed, the benefit which comes through to medicine from astrology, that also shows Hippocrates, and nearly all of those who have said anything about the proper times and places’ (Nam utilitatem, quæ in Medicinam ab Astrologia pervenit, ipse etiam Hippocrates ostendit, ac fere omnes, quicunque aliquid de opportunis temporibus, locisque dixerunt).

¹⁸⁸ Medicinae vero adeo conducit Astronomia, ut Galenus medicorum princeps aegrotos moneat, ne se committant manibus medicorum Astrologiam ignorantium; nam, ait, medicamenta parum, aut nihil prosunt temporibus incongruis exhibita; Immo vero saepe numero nocere solent; Haec autem tempora ex planetarum motibus, qui ad Astronomum pertinet, cognosci possunt duntaxat. Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius*, 10. Adapted from the translation by Rutkin, ‘Astrology, Natural Philosophy and the History of Science, C. 1250-1700’, 415.

Mirandola.¹⁸⁹ This supplement adds no relevant information regarding the previous testimonies, and does not contradict Clavius's acceptance of celestial influence and of the astrological applications of astronomical knowledge. Peter Dear also acknowledged that 'Clavius sanctioned only natural astrology, including the effect of celestial bodies on temperament, and condemned judicial astrology proper as superstitious and theologically suspect'; he also notes that he only addressed theoretical aspects and did not include astrology in his works.¹⁹⁰ Lattis also refers to Clavius's laconic use of astrological interpretation in his text on the Nova of 1572, where he offers a large amount of astronomical data but states only briefly that the Nova would be a portent.¹⁹¹ It must, however, be stressed, particularly regarding Dear's observation, that Clavius refers only to 'practical astronomy', also called judicial, but never to any such division as 'natural astrology' and 'judicial astrology'; he only differentiates the natural effects of the stars, which in this sense are part of licit judicial astrology, as opposed to condemnable superstitious practices. As highlighted in Part I, the proper understanding of the concept of natural, and those of judicial and superstitious astrology as given by Clavius are extremely relevant. Despite the terms being usually addressed without due attention by many authors, the exact definitions used in the text are paramount for understanding Clavius's stand on the matter.

Other evidence, however, shows that Clavius did consider the inclusion of astrology in the studies of mathematics, despite this being absent in his printed writings. Rutkin presents one piece of evidence of this in a text by Clavius entitled 'The manner by which the mathematical disciplines can be promoted in the Society's schools' (*Modus quo disciplinae mathematicae in scholis Societatis possent promoveri*), and usually dated from around 1580.¹⁹² In discussing the utility of the mathematical sciences for the understanding of natural philosophy, and the correct time to introduce students to them, the author states:

Though it is agreed among experts that physics cannot rightly be grasped without them, especially as regards that part which regards the number and motion of the celestial orbs, the multitude of intelligences, the effects of the stars which depend on the various conjunctions, oppositions and other distances between them, the division of continuous quantity into infinity, the ebb and flow of the sea, winds, comets, the rainbow, the halo

¹⁸⁹ ... nisi quod illam funditus evertunt Ioan Picus Mirandulanus libris 12, adversus Astrologos conscriptis: Franciscus Picus eius nepos in libris de Praenotione: Antonius Bernardus Mirandulanus episcopus Casertanus lib. 22. 23. & 24. Monomachiae: Michael Medina lib. 2. de recta in Deum fide, cap. I. & Iulius Syrenus in libris de Fato.

¹⁹⁰ Peter Dear, 'Jesuit Mathematical Science and the Reconstitution of Experience in the Early Seventeenth Century', *Studies in History and Philosophy of Science* 18, no. 2 (1987): 163–64.

¹⁹¹ Lattis, *Between Copernicus and Galileo*, 154.

¹⁹² Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 403 (a discussion on the dating of this text is made on footnote 57). See also, Romano, *La Contre-Réforme Mathématique. Constitution et diffusion d'une culture mathématique jésuite à la Renaissance (1540-1640)*, 94–102.

and other meteorological things, the proportions of motions, qualities, actions, passions and reactions, etc.¹⁹³

While the ‘number and motion of the celestial orbs’ refers to astronomy, in the rest of the sentence it is obvious that he is referring to astrology when he mentions ‘the effects of the stars’ that depend on the interpretation of the movements of the planets as they make the ‘various conjunctions, oppositions and other distances between them’. At the time Clavius wrote this text, the practical application of astronomy, that is, astrology, appears to have had in his mind some place among the teachings of the Jesuit schools. But in the various versions of the *Ratio*, as referred above, there is no mention to astrology, not even a veiled one. A reference to astrology can also be found in an anonymous relation of the Roman College of 1566 at a time when Clavius was already a teacher there. The section entitled *Circa mathematicos*, item 53, states that:

Mathematicians teach in this order: the six books of Euclid, arithmetic, the sphere, cosmography, astrology, the theories of the planets, the Alfonsine tables, etc, perspective, the measurement of time. It will be listened to only by second year students of philosophy, and occasionally, also the students of dialectic, when they have dispensation.¹⁹⁴

Once more it is not clear what is exactly meant by astrology (*astrologia*). The context suggests astrological content rather than astronomical, but again, the distinction is difficult as the two terms are interchangeable. Clavius himself mentions this fact in the introduction of the *Commentarius* and uses both terms to refer to either astrology and astronomy.¹⁹⁵ Interestingly, the inclusion of astrology is also present in an earlier sketch of an encyclopaedic work on mathematics made by Francesco Maurolico for the Jesuits at the College of Messina.¹⁹⁶ The thirteenth and last item of the sketch refers to judicial astrology (*divinatio*):¹⁹⁷

¹⁹³ Cum tamen apud peritos constet, physicam sine illis recte percipi non posse; praesertim quod ad illam partem attinet, ubi agitur de numero et motu orbium caelestium, de multitudine intelligentiarum, de effectibus astrorum, qui pendent ex variis coniunctionibus, oppositionibus et reliquis distantis inter sese, de divisione quantitatis continuae in infinitum, de fluxu et refluxu maris, de ventis, de cometis, iride, halone et aliis rebus meteorologicis, de proportionem motuum, qualitatum, actionum, passionum et reactionum etc. Ladislaus Lukács, *Monumenta paedagogica Societatis Iesu (1588-1616)*, vol. 7 (Roma: Institutum Historicum Societatis Iesu, 1992), 166.

¹⁹⁴ Mathematicus docet hoc ordine: Euclidis sex libros. arithmetica, sphaeram, cosmographiam, astrologiam, theorica planetarum, Alfonsi tabulas etc., perspectivam, de horologiis. Audiant tantum philosophi secundi anni et aliquando ex dispensatione dialectici – *Gubernatio Collegii Romani* in Ladislaus Lukács, *Monumenta Paedagogica Societatis Iesu (1557-1572)*, vol. 2 (Roma: Institutum Historicum Societatis Iesu, 1974), 179.

¹⁹⁵ Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius*, 6. For a discussion of this text see Rutkin, ‘Astrology, Natural Philosophy and the History of Science, C. 1250-1700’, 405–6.

¹⁹⁶ For an extensive study of Maurolico’s manuscripts see: Rosario Moscheo, *Francesco Maurolico tra Rinascimento e scienza galileiana: materiali e ricerche*, Biblioteca dell’Archivio storico messinese 10 (Messina: Società messinese di storia patria, 1988); Rosario Moscheo, *I gesuiti e le matematiche nel secolo XVI. Maurolico, Clavio e l’esperienza siciliana* (Messina: Società messinese di storia patria, 1998).

¹⁹⁷ BnF, Ms. Latin 7471, fols. 14r-23r (*Ejusdem compendium de divisione et principiis scientiarum*).

Therefore, theoretical astronomy, as it considers the incorruptible celestial world, so fixed to geometrical foundations, it is perpetually most certain, leading to the goal of its demonstration and calculation. But judicial, as it pertains to the lower elemental and alterable world, so it is called doubtful, contingent and uncertain. And for this reason, it is the middle (as Ptolemy says) between what is necessary, and what is possible. It can be distinguished into two parts, into general and particular. General, once again, can be divided into two parts, of which one considers the alteration of elements and the accidents of things that are able to come to be. The other part pertains to the qualities of the human body (which alone is subject to the influence of the Stars). The particular branch, on the other hand, pertains to questions and elections, which, however, are weaker, because they follow the horoscopes of those for whom we make an interrogation or choose a time.¹⁹⁸

This quite obvious reference to the study and practice of astrology is supplemented further by a bibliographical list which includes instructions on the subjects to be studied under each author, providing not only a valuable description of what would be considered a basic curriculum of astrology, but also the main authors used to study the foundations of the discipline:

First one must deal with the number of the signs, houses and stars. The nature of the twelve signs from Abraham, Firmicus, Manilius, Alcabitius, and also from Ptolemy. Division of the quadrants. The masculine, feminine, lucid, dark, smoky, void, pitted degrees, and azemene, [and those] increasing fortune, according to Alcabitius. The nature of the twelve houses from Alcabitius, from Hali. The distinction of the quarters.¹⁹⁹ The nature of the planets from Abraham, Alcabitius, Messahallah, Firmicus, Joannes of Montereio [Regiomontanus]. The head and tail of the dragon. General rules from Hali Abenragel, according to others.²⁰⁰ The houses of each planet. Exaltations. Triplicities. Faces. Of terms or bounds. Fortitudes or dignities according to Alcabitius. The lunar mansions according to various [authors]. Aspects and projection of rays. Greek terms according to Julius Firmicus. The passions and parts of the planets from Alcabitius. The years of the planets: greatest, great, medium and small, firdaria from Albumasar and Alcabitius. Directions and profections according to various [authors]. The quality of air, scarcity and abundance [of crops], and revolutions of the years taken according to Ptolemy and others. Of those that relate to horoscopes of nativities from Ptolemy and others. Beibenie stars according to H[ali]. The eight [kinds of] signification of the twelve signs and other constellations, from Hali, Firmicus, Albubater et Cornelius Agrippa. Which [signs] under which are placed regions and illustrious towns, from Ptolemy and from Johannes Schoener. [Rules] for notable and pertinent questions according to various [authors]. Rules for elections according to various [authors]. Planetary hours according to Albumasar, Bethen, Alcabitius. APPENDIX: Lucio Bellantio of Siena's annotations on physics. Brief explanation of Ptolemy's Centiloquium. Of the ascending faces and degrees of the Zodiac, from the authority of Ptolemy, Hermes, Hali, Abraham, Teucer of Babylon, the Arabs and the Indians, and Pietro Abano. Meteorological signs on the

¹⁹⁸ Itaque astronomia theorica, sicut coelestem atque incorruptibilem mundum considerat, ita perpetua est et geometricis innixa fundamentis ad scopum suae demonstrationis atque calculi certissima deducitur. Iudicialis vero sicut ad inferiorem, elementarem et alterabilem mundum pertinet, ita dubia, contingens et incerta fertur. Et perinde media est (ut ait Ptolemaeus) inter necessarium et possibile. Et distingui potest bifariam, in generalem et particularem. Generalis rursus in duas, quarum altera consyderat alterationes elementorum et accidentia rerum generabilium. Reliqua corporis humani (quod solum subijcitur astrorum influxui) qualitates inspiciat. Particularis autem ad Quaestiones et Electiones pertinet, quae tamen sunt debiliores quoniam sequuntur horoscopus eorum, pro quibus interrogamus, aut horam eligimus. BnF, Ms. Latin 7471, pp. 22r, also quoted by Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 411; transcribed in Moscheo, *I gesuiti e le matematiche nel secolo XVI*, 330–31.

¹⁹⁹ Probably the quarters or seasons of the year.

²⁰⁰ Possibly meaning, Hali Abenragel (Abū l-Ḥasan 'Alī ibn Abī l-Rijāl) quoting others.

quality of the air from the various authors, from the compendium of Agostino Nifo, most excellent philosopher.²⁰¹

As Rutkin suggests, such a complex astrological curriculum could be indicative that in the late 1560s there were still no major restrictions regarding the study of astrology. It can also be added that it is also an example of the conceptual structure of an astrological course prior to the restrictions on astrology, a matter that will be further explored in the next section. Clavius was quite familiar with Maurolico's teachings, publicly praised his work, and used part of it in his own books. It is very likely that he was aware of this curriculum and probably learned from a similarly structured course. Additionally, his predecessor Baltasar Torres has also based his teaching in Maurolico's work.²⁰²

Clavius's astrological texts

The foremost evidence of Clavius's posture towards astrology comes from two manuscripts of the Biblioteca Apostolica Vaticana: Urb. Lat. MS 1303 and Urb. Lat. MS 1304 (hereafter designated MS 1303 and MS 1304). These are two volumes of the same set of notes from 1564, containing an early version of his *Commentarius* (MS 1303) and some additional texts on the construction and use of the astrolabe (MS 1304). Baldini refers to the content of these manuscripts in various instances and highlights that they register the presence of astrology in Clavius's early mathematical teachings.²⁰³ In his 2003 description of MS 1304 he says that 'An interesting element is a rather refined treatment of astrology, which disappeared in Clavius's later writings.'²⁰⁴ In fact, a closer study of these works reveals a very interesting scenario that

²⁰¹ Sed prius de numero signorum, domorum, et astrorum agendum. Naturae 12 signorum ex Abraamo, Firmico, Manilio, Alcabitio, item ex Ptolomeo. Divisio quadrantum./ De gradibus masculinis, foemininis, lucidis, tenebrosis, fumosis, vacuis, putealibus, et azemene, augmentantibus fortunam, ex Alcabitio./ Naturae domorum 12 ex Alcabitio, ex Hali. Distinctio quartarum./ Naturae planetarum ex Abraamo, Alcabitio, Messealla, Firmico, Io. de m. regio. De capite et cauda Draconis./ Regulae generales ex Hali Abenragele secundum diversos./ De domibus planetarum singulorum./ De exaltationibus./ De Triadibus./ De faciebus./ De terminis seu finibus./ De fortitudinibus seu dignitatibus ex Alcabitio./ De mansionibus lunae secundum diversos./ De aspectibus et radiationibus./ Graecae dictiones ex Julio Firmico./ De planetarum passionibus et partibus ex Alcab./ De annis planetarum maximis, maioribus, mediis, minoribus fridariis [sic for fridariis] ex Abumasar et Alcabitio./ De directionibus et profectionibus secundum diversos. De qualitatibus aeris, penuria et abundantia et de revolutionibus annorum notanda secundum Ptolomaeum et alios. De his, quae pertinent ad horoscopus nascentium ex Ptolomaeo et aliis. De stellis bebenii [sic] secundum H[ali]./ Signorum 12 et aliarum constellationum 8 significationes ex Hali, Firmico, Albupatro et Cor. Agrippa./ Quibus subiaceant regiones et urbes illustriores ex Ptolomaeo, ex Jo. Shonero./ Ad quaestiones pertinentia et notanda ex diversis./ Electionum Regulae secundum diversos. De horis planetarum secundum Abumasar, Betem, Alcabitium. APPENDIX / Lucii Bellantii senensis physici adnotationes./ Centum sententiae Ptolemaei cum brevissima expositione./ De ascensu facierum et graduum Zodiaci, ex autoritate Ptolemaei, Hermetis, Hali, Abraami, Teucri babylonii, Arabum et Indorum, et Petri Abani./ Signa meteorologica qualitarum aeris ex diversis autoribus, ex compendio Augustini Suessani philosophi praestantissimo. Quoted partially by Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 411-12, footnote 88. Presented in full in Moscheo, *I gesuiti e le matematiche nel secolo XVI*, 330-31. (My translation and revision of the transcription from the original in BnF, Latin 7471, fols. 22r-22v).

²⁰² Fuentes, 'Las matemáticas en la Ratio Studiorum de los Jesuitas', 138-39.

²⁰³ Christopher Clavius, *Corrispondenza*, ed. Ugo Baldini and Pier Daniele Napolitani, vol. 1.1 (Pisa: Università di Pisa, Dipartimento di matematica, 1992), 62-63.

²⁰⁴ Baldini, 'The Academy of Mathematics of the Collegio Romano from 1553 to 1612', 70.

corroborates all the previous arguments on Clavius's acceptance of astrology as part of the mathematical practices.

The first manuscript, MS 1303 is an early version of the *Commentarius* and presents a similar structure to the printed version. The content of each chapter is nearly identical, but it is not presented in the same order as in the 1570 edition. A full comparison of the two texts is out of the scope of the present study; however, a closer analysis of sections pertaining to astrology is quite revealing. Beyond the aforementioned sections the printed edition presents almost no astrological content; undeniably, Clavius followed his opening statement that he would 'say nothing whatsoever about this subject'. But nonetheless this can be put into perspective depending on what is considered to be astrological material. In some instances, the distinction between astrological and astronomical doctrines is not straightforward. Though it is true that the *Commentarius*' printed edition makes no reference to astrological interpretation, i.e. judicial practice, it does contain explanations of concepts which pertain solely to astrology, or, in a broader view, to the matter of celestial influence. These are found in chapters pertaining to the zodiac. Unquestionably, the signs and the ecliptic are a fundamental topic in astronomy, thus, it is not unexpected to find them in any astronomical book. But in the *Commentarius*, Clavius extends his explanation beyond the purely astronomical definitions and includes the association of the signs with the fundamental qualities, elements and humors.²⁰⁵ These are concepts only used in astrology, as they are the basis for equating celestial configurations to events on Earth. According to astrological doctrine, it is the association of the planets and the signs to these qualities that defines the nature of their effects, be that on human affairs, medicine or weather forecasting. Regarding the latter he refers briefly to the revolutions of the years of the world ('annuas mundi reuolutiones'), used not only to that effect, but also to make determinations on the general affairs of the world.²⁰⁶ In this section of the book he also discusses planetary dignities, though he informs the reader that:²⁰⁷

Many things can be said in this place on the various properties and names of the signs, but since such things are considered more by judicial astrologers, they are now omitted. It will only be indicated which signs are said to be houses and exaltations of this or another planet.²⁰⁸

²⁰⁵ Clavius, *In Sphaeram Ioannis de Sacro Bosco commentarius*, 293–99.

²⁰⁶ Clavius, 302.

²⁰⁷ Clavius, 304–5.

²⁰⁸ Multa essent hoc loco dicenda de variis proprietatibus, appellationibusque signorum, quae quoniam spectant magis ad Astrologos iudiciarios, omittenda nunc sunt: Solum declarandum erit, quae nam signa dicantur domus, & exaltationes huius aut illius Planetarum. Clavius, 304.

Once more Clavius choses to omit the more judicially inclined material and addresses only basic astrological concepts. Yet, the houses and exaltations of the planets are only used in respect to their influence on sublunary bodies. In Clavius's own words 'each and any planet when it is in its own house exercises and displays its maximum power over inferior things.'²⁰⁹ Although no practical rules for applying these concepts are presented, their very inclusion reveals that Clavius is well aware of them, how they are used, and how to properly present them to a student. He is omitting almost all of the practical parts of astrology, but not the fundamental concepts. In the manuscript version in MS 1303 all these concepts of the signs as houses of the planets are expanded. It is difficult to ascertain all the differences in the texts, as the concepts are explained in a different order than in the printed version, but there is undoubtedly a slight expansion on astrological topics. For example, in the section concerning the dignities of the planets in the signs there is no opening statement regarding judicial material. He enumerates a greater number of planetary dignities. Besides the houses and exaltations, Clavius refers briefly to the concept of triplicities and adds an entire section on the faces (fol. 196v) that is omitted in the printed version. At the end of the section he includes a complete table with the attributes of the signs and planetary dignities (fol. 197r) which again is not present in the printed material.

Perhaps the most important difference in MS 1303 is the definition of 'astronomia practica' in the opening text (fols. 14r-14v). A comparison between both texts shows significant differences (here emphasized) in the manuscript version:

Commentarius, 1570 edition, page 7:

The practical astronomy that others call judicial or prognosticatory, that is what they call divinatory, orients all these things towards the practicalities of human life, for it contemplates complexion and the natures of both the signs and the constellations and also of the planets and of the remaining stars, and it indicates which signs are hot, which cold, and which temperate, which are masculine, which feminine, and other things of this type. Again it predicts future events in the world below from the motions of the planets and their orbs. But since many people have dared to throw in many things rashly and falsely to this part of astronomy and have wished to amplify this prognosticatory part to such an extent that it became altogether superstitious and odious, and it is justly held to be suspect by the Church, and it was condemned in a marvellous manner by Saint Augustine in his books on Christian Doctrine, therefore I deem that we will say nothing whatsoever about this subject.

BAV, Urb.Lat. MS 1303, fols.14r-14v:

The practical astronomy that other call judicial or prognosticatory, that is what they call divinatory, orients all these things towards the practicalities of human life, for it contemplates complexion and the natures of both the signs and the constellations and also of the planets and of the remaining stars, and it indicates which signs are hot, which cold, and which temperate, which are masculine, which feminine, and other things of this type. Again it predicts future events in the world below from the motions of the planets and their orbs, **which Ptolemy copiously handed down to us in the work *Quadripartitum*, and the *Centiloquium***, many people have dared to throw in many things rashly and falsely to this part of astronomy and have wished to amplify this prognosticatory part in such way that it became altogether superstitious and odious, and it is justly **forbidden** by the Church, and it was **abhorred** in a marvellous manner by Saint Augustine in his books on Christian Doctrine. **There is no reason to deny that those superior bodies have the power to act on these inferior bodies. For they exercise their activities on these sublunary things. But since they are only universal causes, very often they are prevented from obtaining their effects, especially with regard to free will. Thus**

²⁰⁹ ... eo quod quilibet Planeta in propria domo existens maxime virtutem suam exercet et ostendit in his inferioribus. Clavius, 304.

Ptolemy, the prince of this philosophy, put forward this in a most beautiful way in his *Centiloquium* ('the wise man will rule the stars'). But I think that we should say nothing of the judicial or prognosticatory as much as it is dissenting with Christian Religion and the piety of the Church Fathers. We write only of theoretical astronomy.²¹⁰

The first difference is the reference to Ptolemy's two astrological books, the *Quadripartitum* or *Tetrabiblos*, and the *Centiloquium* (also referred to as the *Liber Fructus*).²¹¹ This reference denotes a certain tone of reverence and gives direct validity to astrology; only then does he speak of the abusive additions that made it not just 'suspect' or 'condemnable', but 'forbidden' and 'abhorred'. His selection of harsher words might be indicative of the stricter position of the Church towards astrology by 1564. But Clavius continues his argument saying that celestial influence over the sublunary world cannot be denied, despite these abusive uses of the honourable astrology handed down by Ptolemy; furthermore, as these are universal causes, they are subject to change, particularly when regarding free will. The contrast is with universal causes, acting only on genera and species, and particular causes, acting on individuals. In passing from universal to particular all kinds of other factors come into play. He thus makes a case as to the validity of astrology, taking into due consideration free will, as any good Christian would, and closing with the famous quote: 'sapiens dominabitur astris'. Again, much as in the printed version, Clavius chooses to say nothing of judicial astrology given that the subject disagrees with the Church and will deal only with astronomical theory. His statement mirrors quite directly Nadal's abovementioned indication that the mathematician should only deal with 'speculativas mathematices'.²¹²

²¹⁰ Practica vero astronomia, quam alii iudicalem, seu pronosticam, id est, divinatricem dicunt omnia ista ad usum humanae uitae accommodat. Contemplatur enim complexiones, et naturas tum signorum, constellationumque, tum etiam planetarum, reliquarumque stellarum, explicatque quanam signa sint frigida, quae calida, quae temperata, quae masculina, quae feminina, et alia id genus. Rursus ex motibus orbium, et stellarum futuros euentus in hisce inferioribus praedicat, quam nobis partem copiosissime tradidit Ptolomeus in quadripartito opere, et centiloquio, cui multi multa temerarie ac perperam ausi sunt adicere adeoque hanc partem pronosticam amplificare voluerunt, ut sit iam res omnino superstitiosa exosaque, et merito ab Ecclesia prohibita, mirumque in modum a B. Augustino execrata in lib. de doctrina Christiana. Non est tamen idcirco negandum superiora illa corpora in haec inferiora habere uim agendi. Habent enim suas in haec sublunaria actiones. Verum quoniam sunt causae admodum universales, saepenumero impediri solent ne suos effectus sortiantur, maxime vero circa liberum hominis arbitrium. Unde Ptolomeus huius philosophiae princeps hanc uiam pulcherrimam in suo centiloquio protulit (sapiens dominabitur astris). Caeterum nihil, de hac iudiciali, seu prognostica, tanquam christianae religioni, et pietati patrum dissentiente nobis dicendum existimo. Solum de theorica astronomia verba faciemus. (MS 1303, fols. 14v-14r). For the Latin of the printed edition see note 185.

²¹¹ At this time it was still assumed by most that Ptolemy was the author of the *Centiloquium*. In 1554, Cardano, in his edition of the *Quadripartitum*, had already raised doubt over the *Centiloquium*'s authorship; see: Grafton, *Cardano's Cosmos*, 137. Later the text was considered to be the work of a Pseudo-Ptolemy (for a discussion on the role of this work in the medieval and early modern period see Richard Lemay, 'Origin and Success of the Kitāb Thamara of Abū Ja'far Ibn Yūsuf Ibn Ibrāhīm: From the Tenth to the Seventeenth Century in the World of Islam and the Latin West', in *Proceedings of the First International Symposium for the History of Arabic Science, April 5-12, 1976*, ed. Nizar. Namnum et al. (Aleppo: Institute for the History of Arabic Science, 1978), 91-107.

²¹² Lukács, *Monumenta paedagogica Societatis Iesu (1540-1556)*, 1:150.

In sum, a reading of the definition of *astronomia practica* in the printed edition of the *Commentarius* does hint of a somewhat stricter posture by Clavius regarding astrology (which eventually led to its exclusion from the text). This is then smoothed by the following introductory sections where he straightforwardly accepts celestial influence and the practical uses of astrology in subjects such as medicine. The manuscript version confirms this posture, showing a clearer acceptance of astrology, openly expressed in his definition and sustained by the authority of Ptolemy.²¹³

The second manuscript, MS 1304, contains a text on the construction and use of the astrolabe, possibly the initial notes for his work *Astrolabium* published in 1593.²¹⁴ It is in this manuscript that the astrological content is even more clearly present. It must be noted that Clavius was faithful to his initial statement that he would only deal with theoretical astronomy. This is indeed a technical text and the astrological parts pertain, as in the draft of the *Commentarius* in MS 1303, to astrological theory and calculation. The sections on the celestial houses pertain clearly to astrology, since they have no role in astronomy. Clavius does not discuss their interpretation, but in the chapter concerning the circles of the celestial houses (‘De circulis domorum caelestium’) (fols. 17v-24r) he gives an astronomical definition of the houses and explains their function:

The circles of the celestial houses are certain great circles that divide the entire heaven into twelve parts, which are called the celestial houses. Moreover, those celestial houses in the sky are called the parts in which the stars obtain various lordships. For this well-known reason ancient astronomers, when they saw the stellar strengths and influences; not only because of the special nature of each of the stars – for they are varied, for they do not all have the same influence, as experience confirms – some of which moisten these inferiors, some dry, some, finally, are effective in different ways; but also, because of one or the other position in the heavens, it now increases the strength, now otherwise decreases it – a fact that we grasp clearly in the case of the luminaries.²¹⁵

And again, some paragraphs later:

²¹³ A more thorough study of the manuscript might provide additional, though less remarkable, examples. For instance, in the chapter concerning the application of astronomy to medicine quoted beforehand, there are slight differences in the wording, the most outstanding being the mention of Ptolemy’s *Centiloquium* not present in the printed version (here emphasised): ‘Medicinae vero adeo conducit astronomia, ut Galenus medicorum princeps aegrotos moneat ne se committant manibus medicorum astrologiam ignorantium. Nam ut **Ptolomeus ait in Centiloquio** medicamenta parum aut nihil prosunt temporis incongruis exhibita; immo vero saepenumero nocere solent. Hac aut ipsa ex motibus planetarum cognosci possunt’ (MS 1303, fol. 18v) – my emphasis.

²¹⁴ Christopher Clavius, *Astrolabium* (Roma: Bartolomei Grassi, 1593).

²¹⁵ Circuli domorum caelestium sunt quidam circuli magni qui dividunt totum caelum in 12 partes, quas caelestes domos appellant. Domos porro caelestes illae in caelo dicuntur partes in quibus varia dominia obtinent sidera. Pro qua re nota Vaeteres astronomi cum viderent stellarum vires et influxos non solum pro singularum stellarum peculiari natura varios esse non enim omnes eundem habent influxum, ut experientia constat; cum quaedam haec inferiora humectent, quaedam exicunt; quaedam denique aliter atque aliter efficiant. Verum etiam pro alio, atque alio caeli situ earundem vires modo augeri modo alio minui quod non obscure in luminaribus deprehendimus. (MS 1304, fol. 17v).

Since, I say, those ancient astronomers divided the entire heaven into 12 parts, in which especially according to the various locations and positions, the stars produce also a variety of effects in these inferior things.²¹⁶

Here he clearly identifies the houses as being places or locations in the heavens, wherefrom the planets exert specific influences, where they obtain various rulerships over things, and that regulate their strength. This is a straightforward application of the celestial influence according to astrological doctrine.

In this chapter Clavius also examines the various methods of dividing the heaven to define the houses, showing that he is well aware of the ongoing debate regarding what would be the best house division. He engages this topic quoting Alcabitius (al-Qabīṣī) and his commentator, John of Saxony (fol. 20) and their house calculation, currently known as the ‘standard method’. Then he proceeds with the method proposed by Campanus of Novara (fol. 20v), and lastly, he explains Regiomontanus’s division of the houses (fol. 21r), called the Rational Method (*modus rationalis*), which was the calculation predominantly used in this period, as mentioned before.²¹⁷ The manuscript has the space for the two illustrative figures of these two methods (fols. 21r-21v), which were never drawn in this copy. At the end of the text, Clavius discusses the more general astronomical nomenclature and features of the houses and presents this information in an astrological diagram with the caption ‘The celestial houses according to the judicial astrologers, retaining the order and nomenclature of the same celestial houses’ (fol. 24r).²¹⁸ It must be noted that he never discusses the judicial (that is interpretative) attributes of the houses, information which is commonly presented even in non-astrological texts (though mostly in an abbreviated form).

²¹⁶ Cum hoc inquam vidissent antiqui illi astronomi diviserunt totum caelum in 12 partes, in quibus maxime ob varios situs et positiones stellae varios etiam effectus in his inferioribus producant. (MS 1304, fol. 18r).


²¹⁷ The Standard Method was commonly attributed to Alcabitius, and the Prime Vertical method (fixed boundaries) to Campanus, although they have a much earlier origin. The Rational Method discussed by Regiomontanus also has a earlier origin and is referred to in academic literature as the Equatorial method (fixed boundaries). For a discussion of these methods, their historical use and proposed academic nomenclature see North, *Horoscopes and History*, 1–70; as well as Kennedy, ‘The Astrological Houses’; and Josep Casulleras and Jan P. Hogendijk, ‘Progressions, Rays and Houses in Medieval Islamic Astrology - A Mathematical Classification by J. Casulleras And J. P. Hogendijk’, *Suhayl*, no. 11 (2012): 33–102.

²¹⁸ Caelestium domorum secundum astrologos iudiciarios retinens simul ordinem, ac nomenclaturam eorundem domorum caelestium. (Ms. 1304, fol. 24r)

Clavius is addressing a matter which is exclusively astrological. Once more he mentions the matter of house division and the confusion surrounding it, opting to follow Johannes Stöffler and use Regiomontanus's *modus rationalis*, by which he then proceeds to explain how to inscribe the house divisions on the astrolabe's plate.

There is no printed equivalent of this text, but the celestial houses are mentioned in the *Astrolabium* in three instances. First in book I, problem VII, proposition X (p. 488), an entirely technical text where the mathematics and geometry of the inscription of house circles onto the astrolabe's plate is explained in much more detail than in MS 1304; the only division used and mentioned is the rational method by Regiomontanus. The second allusion to the houses is in proposition XX, where they are again briefly defined according to Regiomontanus (p. 588). The third is in Canon XI of book III (p. 663) concerning the determination of the ecliptic degrees of the meridian, the horizon, and the positions of the celestial houses. All these three texts contain only technical instructions and, contrarily to the manuscript, no mention is made of the use of the houses in astrology, or of their function in the influence of the stars and planets over inferior bodies. The continued inclusion of the celestial houses by Clavius, shows their importance in the practical uses of the astrolabe. Even if some uses of astrology were forbidden, it was still lawfully used in weather forecasting and medicine (both mentioned by Clavius in his texts, printed or manuscript). Thus, the astrologers had to have the proper expertise and equipment to calculate the astrological figures needed for such endeavours. Clavius's grasp of this practical application is displayed in the final chapter of MS 1304. Here, in Canon 22, 'the constitution of the beginning of the twelve houses of heaven' (fols. 155v-158r), is presented the most straightforward use of the astrolabe for astrological purposes. The chapter explains the calculation of an astrological figure, by determining the position of the cusps (the starting points) of the celestial houses, and then the placement of the planets and stars in the figure. Clavius uses as an example the calculation of the astrological figure for the new moon of the 6th of August 1564, displaying the completed figure on the last folio (fol. 157v), with the caption:

Celestial theme for the year 1564 in which was made the conjunction of the Sun and the Moon; day 6 of August 11th post meridian hour and 43 minutes, being the Sun at 23 degrees and 12 minutes of Leo.²²⁰

²²⁰ Thema caeleste anno 1564 quando fuit facta conjunctio solis, et lunae die 6.^o Augusti, hora pomeridiana 11.^a minuto 43. Existente sole in 23 gradu et 12 minuto  [Leonis] (Ms. 1304, fol. 157v).

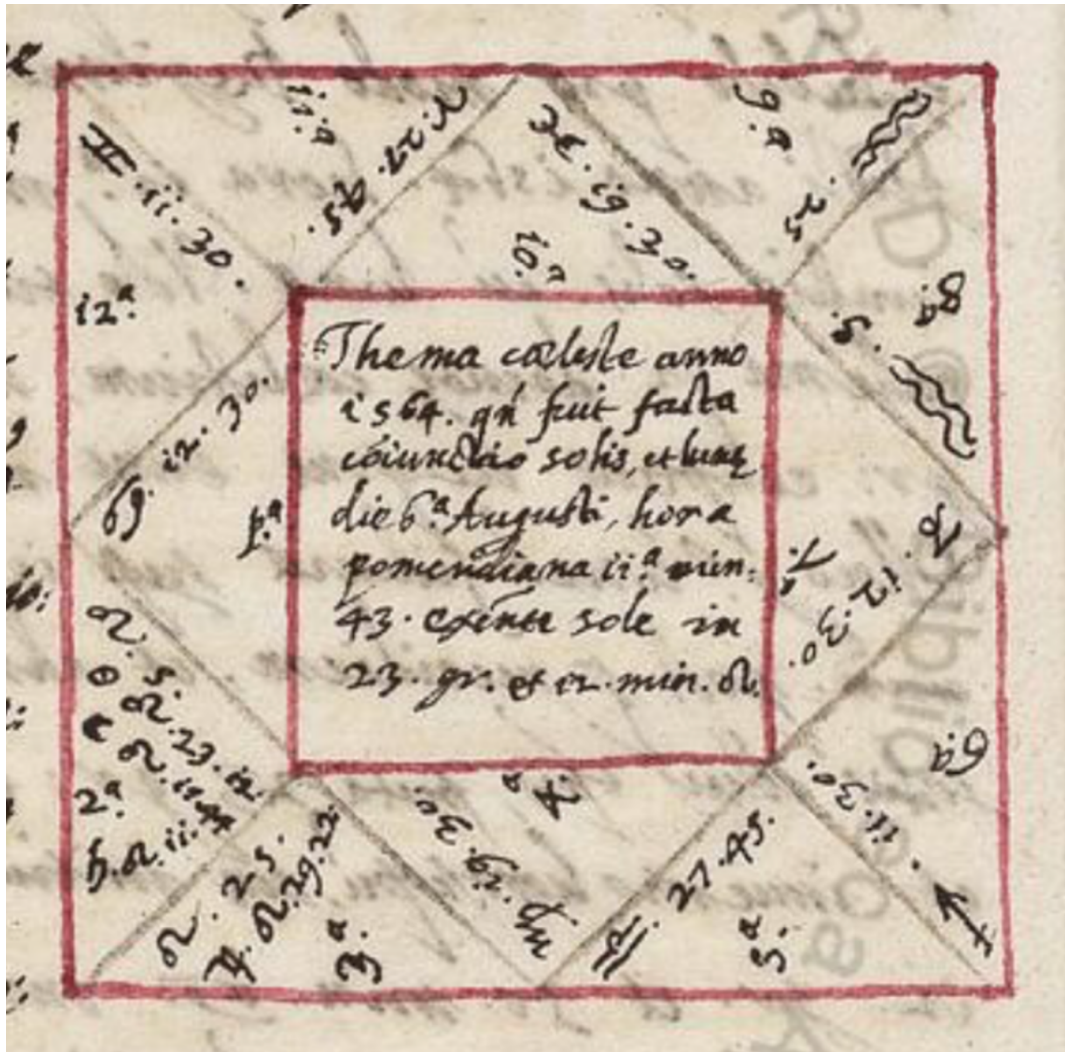


Figure 7.2 – Clavius: celestial figure for the new moon of 6 August 1564, Ms. 1304, fol. 157v.

The selection of this example was not innocent. Considering his discrete acceptance of astrology throughout his texts, the choice of a lunation is quite appropriate. In astrological terms the figure of a New Moon (as well as of a Full Moon) has almost a universal application, and it is an integral part of licit practices of astrology. Though they can be used in the context of nativities, they are one of the foundations of weather forecasting, and are commonly applied in medical astrological diagnostic, thus becoming a perfectly innocuous example of astrology.

Lastly, in MS 1304 there is also some astrological material in Canon 10 (fol. 121v), which explains planetary hours and includes a table of the planetary rulers of each day and hour of the week (fol. 124v). This kind of material was altogether omitted from the *Astrolabium*, presumably because it had no use other than for judiciary astrology, and is usually applied in interrogations and elections, one being one of the most illicit forms of judiciary practice, while

the other was held as suspicious by some authors. Once more the text only gives a definition of the hours and their computation; no practical application is mentioned.

These manuscripts also expand Clavius's already large bibliography compiled by Eberhard Knobloch, adding three exclusively astrological works to the list, any of which were foundation works and required reading for any student or practitioner of astrology. The first two are the astrological works by Ptolemy (or attributed to him), the *Quadripartitum* or *Tetrabiblos*, and the *Centiloquium*, and the third, John of Saxony's commentary on Alcabitius, *Liber Introductorius ad Magisterium Iudiciorum Astrorum* ('The introduction to the art of the judgements of the stars').²²¹

Laying out the evidence

As will become clearer in the following parts of this research, most testimonies of the Jesuit study (and practice) of astrology come from manuscripts. This is quite evident in the case of Clavius and even more in the case of Santo Antão which will be discussed in Part Three. Thus, the lack of astrology in print form does not provide the full picture. It does suggest that the publishing of astrological works, particularly any text that approached judicial astrology, was not authorised by the Order. This is not unexpected since, as was discussed above, astrology was a sensitive subject, especially within a religious context where not only had it been the focus of a long historical debate as to its lawfulness, but also it had been regulated by the Index of 1563, and by 1586 subjected to the restriction of a papal bull. Under these conditions even a more astrological inclined Jesuit would have to be cautious with his writings. Baldini argues exactly this when discussing Clavius's choice to exclude astrology from his works. He suggests that an intervention by his superiors might have been the primary reason for the more thorough omission in the printed editions. But, contrary to the evidence presented, Baldini tends to see in Clavius an opponent of astrology. In his view his exclusion of astrology from the *Commentarius* is a strong enough argument to attest Clavius's anti-astrological position. However, this case is weakened by the evidence discussed above. Another argument presented is that one of the most popular critics of astrology was his former student Alessandro De Angelis, whose opinions might be expected to mirror Clavius's own point of view on the matter.²²² If this would be the case there would be no reason for Clavius to present such a mild

²²¹ None are included in Knobloch's list of authors cited in the *Opera*, see Eberhard Knobloch, 'Christoph Clavius, Ein Namen- Und Schriftenverzeichnis Zu Seinen Opera Mathematica', *Bollettino Di Storia Delle Scienze Matematiche*, no. 10 (1990): 135–89.

²²² Clavius, *Corrispondenza*, 1992, 1:64, note 16.

discourse regarding astrology in the *Commentarius*. Furthermore, João Delgado, also a former student of Clavius, taught astrology at the College of Santo Antão in Portugal; thus it could also be argued that he might be following a more tolerant position towards astrology, a position his former tutor was not able to assert openly, because of being so close to the core of the controversy.²²³ On the other hand, Baldini considers that the mathematical classes of Santo Antão were a direct result of Clavius's teaching tradition and complemented the activity of the Collegio Romano for those going to the Far East on missionary work.²²⁴ In this light, the presence of astrological teachings well into the first years of the college, when Clavius was still alive, would reflect his acceptance of its practice. De Angelis's anti-astrology posture is thus weak evidence for Clavius's own stand on the matter, and also for that of other Jesuits. In fact, as will be discussed later, other Jesuit teachers of Santo Antão, such as Simon Fallon and Luís Gonzaga, rebut in their astrology classes the arguments of De Angelis, as well as those of other Jesuit critics of astrology like Pereira and Del Rio. Conversely, Rutkin and Romano see in Clavius, not an opposition, but an intricate position of neutrality because, despite his exclusion of astrology from his works, he does not attack it or question its validity. It can also be added that he keeps any astrological information on a very technical level, only giving brief explanations of the basic concepts. Nonetheless, Clavius openly certifies that they are used to evaluate the natural celestial influence, thus acknowledging astrology's validity at the same time as he evades the problematic topic of astrological judgements by not detailing with or exemplifying any practical application. These are only hinted in his references to the natural actions of the superior bodies in the sublunary world, where the more evident astrological information is discussed in terms of weather, such as the drying or moistening qualities of the stars – once more, a quite neutral topic. Until there is proof of the contrary, there is no evidence that Clavius actually practiced astrology, nor is it the purpose of this study to prove that. Since his talents evidently lay in the more theoretical and technical parts of astronomy, the practice of astrology might not have been one of his main interests. However, there is plenty of evidence in his printed works and manuscripts for his knowledge of astrological doctrine, and his acceptance of celestial influence as working by means of astrological concepts, and even perhaps of some more judicially inclined applications, albeit within the lawful bounds set out by the Church's authorities (both the ancients and those of his time), as he states in both his printed and manuscript texts. Clavius was also well aware that one of the main uses of

²²³ João Delgado's work on astrology will be discussed in detail in Chapter 11.

²²⁴ Baldini, 'The Academy of Mathematics of the Collegio Romano from 1553 to 1612', 60.

astronomical computations and instruments was astrology and reveals that he was versed in the more technical facets of the subject. Finally, it must also be noted, in view of mainstream historiography, that this fact does not diminish in any way his contributions to mathematics, nor his ‘modernity’ as a figure of science. It makes him a man of his time, correctly placing him in the cultural context in which he lived, studied, and produced his work.

Astrology in Jesuit printed works

Having dealt with the leading figure in Jesuit mathematical and astronomical studies, both in his printed texts and in his manuscript versions, this study will now address the works of other Jesuit scholars. It explores publications on mathematics and astronomy containing material on astrology or on astrological concepts. The authors studied are the well-known astronomers and mathematicians, Giuseppe Biancani (1566-1624), Christoph Scheiner (1573–1650), Paul Guldin (1577–1643), Hugh Sempill (1596-1654), Giovanni Battista Riccioli (1598-1671), Kaspar Schott (1608-1666), and Athanasius Kircher (1602-1680). The references to astrology in their printed works offer a perspective on the public stance of the Jesuit mathematicians and astronomers on the topic of astrology. Additionally, as their writing activity ranges from the first to the very last decades of the seventeenth century, they also provide a chronological outlook of the attitude towards astrology.

Biancani’s unmathematical thing

Giuseppe Biancani (1566-1624), also known as Josephus Blancanus, was a direct student of Clavius, having studied with him in the Collegio Romano. He was also acquainted with Galileo, whom he met while later studying at Padua. He became a professor of mathematics at Parma and wrote two important works: *De mathematicarum natura dissertatio* (Parma, 1615) and *Sphaera mundi, seu cosmographia demonstrativa, ac facili methodo tradita*, also written in 1615, but only published in 1620 due to difficulties with the censors.²²⁵ The latter contains his own telescopic observations and a reflection on the work of Copernicus, Tycho Brahe, Kepler and Galileo. In this book Biancani discusses astrology within the context of astronomy. Like Clavius, he does not present any astrological doctrine, but his discourse on astrology has a much harsher tone. This can be perceived immediately in one of his first references to astrology in

²²⁵ Giuseppe Biancani, *De Mathematicarum Natura Dissertatio* (Bologna: Bartholomaeum Cochium, 1615); *Sphaera mundi, seu, Cosmographia. Demonstratiua, ac facili methodo tradita: in qua totius mundi fabrica, vna cum nouis, Tychonis, Kepleri, Galilaei, aliorumque astronomorum adinuentis continetur* (Bologna: Hieronymi Tamburini, 1620).

the opening statement in the section on the learning and advancement of mathematics ('Apparatus ad mathematicas addiscendas, et promovendas'):

Truly (and this should be deplored) there are many people in all places who sell themselves as mathematicians, just because in some way they know the circles of the sphere, or possess the mere design of sundials. How many (of these) are there that think that the whole force of mathematics consists in this: that someone knows how to construct one's nativity? So many are almost all of those who think that judiciary astrology is the summit of all mathematics, while it on no account deserves the name of mathematical science.²²⁶

There are no astrological concepts present in the astronomical sections of *Sphaera mundi*, only a very brief reference to the celestial houses, and quite unflattering to astrologers, at the end of the section on the great circles, where he says that it is the topic 'of which many judiciary astrologers talk nonsense.'²²⁷ Astrology is once more addressed when discussing its placement within mathematics in the section where he enumerates the six theoretical mathematics (*Speculativae Mathematicae*), the sixth being astronomy, and astrology being part of it:

Astrology or judiciary, which is to predict future events, is commonly considered part of astronomy, but undeservingly, because, although it demonstrates virtually nothing, nevertheless it tries to demonstrate by natural causes, not by mathematical [causes], for which reason it must be considered part of physics. It is however true that some astrologers who considerably lack astronomical knowledge, in particular calculation, have certainly usurped the name of astrology.²²⁸

It is obvious that for Biancani astrology has no rightful place among the mathematical sciences; its only connection comes from its association with astronomy which provides the required data for the astrological calculations. Here he is also divergent from Clavius, who had no qualms about placing astrology as the practical facet of astronomy.²²⁹ Biancani also connects it to practical astronomy but considers it to be more akin to natural philosophy because, unlike astronomy, it cannot be proved by mathematical means. According to Peter Dear, this distinction is being used by Biancani 'to remove what he appears to have seen as a pollution of astronomy by astrology', but in none of his remarks is he necessarily rejecting astrology as a

²²⁶ Verum (quod magis dolendum est) plurimi passim reperiuntur, qui se mathematicos venditant, propterea quòd sphaerae circulos utcunque noverint, aut quod nudam horologii descriptionem teneant, quot sunt qui totam Matheseos vim in eo consistere putant, ut sciat quis, ut aiunt, alicuius Nativitatem construere? totique sunt ferè omnes, ut Iudiciariam astrologiam existentem esse totius Matheseos columnen, quae tamen nulla ratione nomen scientiae mathematicae meretur. Biancani, *Sphaera mundi*, 387.

²²⁷ Circuli Domorum ac positionum sunt; quibus multa nugantur Astrologi iudicarii. Biancani, 53.

²²⁸ Astrologia, seu Iudiciaria, cuius est futura praedicere etiam vulgo pars Astronomiae putatur, sed immeritò, quia etsi nihil ferè demonstret conatur tamen per causas naturales, non Mathematicas demonstrare, quare pars physicae censenda est. Verum quidem est hosce Astrologos nonnulla rerum astronomicarum cognitione indigere, praesertim calculo, valde sibi Astrologie nomen usurparunt. Biancani, 390.

²²⁹ For a discussion on the differences between Clavius and Biancani, see: Dear, 'Jesuit Mathematical Science and the Reconstitution of Experience in the Early Seventeenth Century', 163–65.

valid knowledge.²³⁰ Again, although harsher in his attitude than Clavius, he also does not deny the study of the effects of the heavenly bodies in the sublunary world; he simply places it outside the mathematical sciences. It is clear in his words that, like many other authors of this period, he discredits some practices of astrology, and most of all some practitioners, and more so than Clavius. He specifically admonishes the attitudes of some astrologers whom he considers lack the essential mathematical knowledge and take advantage of the prestige of the sciences of astronomy and astrology for their unworthily activities:

Although this astrology, as we taught above, is not truly part of astronomy, nevertheless, since it often is in need of it, it is usually included with it. Furthermore, it is double; for it predicts those things applied to agriculture, navigation and medicine, and this part is licit, and it is not forbidden by any laws, or it prognosticates human free events as if inevitable, which part is illicit, and forbidden by divine and human laws – a course of study, most vain, and unworthy, in which are invested many good hours, which has been by many, including the two greatest astronomers of our time most aware of its vanity, Tycho and Kepler, many times reproved. Read Pico della Mirandola against the astrologers. However, not all this art is to be entirely forbidden, as we said. I will enumerate a few of its authors who undermine less the human freedom and are perhaps not condemned. Q. Manilius's *Astronomicon* written in verse, Ptolemy's *Quadripartitum*, *Centiloquium*, the meanings of the fixed stars, Julius Firmicus Maternus's *On the Judgements*, from the times of the Emperors Constans and Constantius [reign]; and let's leave out the remaining Arabs, and more recent Latins, who by [virtue of their] follies and superstitions are fully unworthy of being listed. But these authors have [continued to] be published up to now, and their books are sufficient to fill a library.²³¹

He does recognize those who suitably practiced astrology like Tycho and Kepler and recognizes merit in the ancient authorities, but only the Greek ones, typically leaving out the Arabic and some of the Latin authors. In this, he appears to be much in tune with the movement of this period to restore astrology to its supposed Greek origins. Curiously, he makes almost no remark on the clash between astrology and the Christian religion, which might be explained by the lack of any astrological content in this work and by his dismissal of astrology as part of mathematics. This is also due to the association of mathematics with divinatory practices by its critics, and particularly astrology. An idea he clearly transmits in his other work, the *De mathematicarum*

²³⁰ Peter Dear, *Discipline and Experience: The Mathematical Way in the Scientific Revolution* (Chicago: University of Chicago Press, 1995), 165–66.

²³¹ Quamuis Astrologia haec, ut supra docuimus, non sit verè pars Astronomiae, quia tamen saepissimè ea indiget, ideo ea solet hic annumerari. duplex porrò est, aut enim ea praedicat quae Agricolationi, Navigationi, & Medicinae conferunt, & hac parte licita est, nec ullis legibus proscripti [read: -ta], aut liberos hominis eventus, quasi necessarios divinator, qua parte illicita, ac legibus divinis, ac humanis prohibita. Studium profecto vanissimum, ac indignum, in quo bonae horae collocentur, quod tum plures, tum duo summi nostre aetatis Astronomi eius vanitatis consultissimi; Ticho, & Keplerus pluribus reprehendant lege Picum Mirandulanum contra Astrologos. cum autem non sit haec ars tota omnino interdicta, ut diximus, paucos eius autores enumerabo ex iis, qui minus humanae libertati derogant, nec fortè sunt damnati. Q. Manilii *Astronomicon* versibus descriptum. Ptolomaei *Quadripartitum*, *Centiloquium*, inerrantium Stellarum significationes. Iulius Firmicus Maternus de ludicijs, sub Constante & Constantio Imper. caeteros Arabes, & Latinos recentiores nugis, & superstitionibus plenos indignos recenseri, missos faciamus. Atque, hi sunt Authores qui hactenus in lucem prodierunt quique Bibliothecae construendae sufficere possint. Biancani, *Sphaera mundi*, 399.

natura disertatio, in the chapter on the calumnies against mathematics, item fifteenth, that shows many similarities with the one described above. Here Biancani vigorously dismisses any connotation of mathematics with bad practitioners of astrology, which he refers to as ‘genethliaci’, ‘Caldeans’ or ‘judiciary’ but never by the name ‘astrologers’, possibly to emphasise the negative tone and distinguish from a more lawful practice which he appears to accept, or be neutral about:

The fifteenth is [that] which they add either as a joke, or from sheer ignorance, namely, that mathematicians were often proscribed and condemned by both secular and sacred law, and that in the past they were quite frequently expelled from the Empire by the edicts of Roman Emperors. In fact, we should never respond to this, for nobody can be so much lacking in erudition, as not to know that these were the pseudo-mathematicians, more aptly called *Genethliaci*, Chaldeans or Judiciaries, whose teaching nobody can prove to me by any means, as it relies neither on experience, nor on reasons, but it is sheer deception and fraud, and often just superstition. Therefore, it is to be wondered why these arts are never abolished once and for all, but, as Cornelius Tacitus says in bk. 1 of *Histories*: “This kind of people, infidel to the powerful, and treacherous to the hopeful, in our society will always be condemned, and will always be retained.” Read the twelve books of Pico della Mirandola against the astrologers. For further assistance there are Tycho and Kepler, who, although astronomers themselves, many times condemned this kind of astronomy. But those act cantankerously who seek to shift the blame from these rascals to all mathematicians. I only wanted to say all this lest the more simpleminded should be deceived by these slanderers.²³²

Indeed, both in the *Sphaera mundi*, and *De mathematicarum natura disertatio*, Biancani is much more concerned with the worthiness of mathematics from which, unlike other authors, he excludes astrology; the reasons being at the same time due to the closeness of astrology to natural philosophy, but also due to the potential negative connotations it could bring to mathematics. Nevertheless, he never denies it as valid knowledge in itself and the remarks he makes on the improper uses of judiciary astrology are a common stand he shares with many authors, including some astrologers. Biancani also seems to acknowledge some practices of astrology, those licit and for the use of agriculture, navigation and medicine, but unfortunately,

²³² Decima quinta est, quod sive ioco, sive ex eruditionis ignoratione addunt Mathematicos legibus tum prophanis, tum sacris saepius proscriptos, ac Damnatos fuisse; atque olim non rarò Imperatorum editis Romano imperio pulsos. Verùm istis nequaquam opus esset respondere, cùm vix nullus adeò eruditionis experts reperiatur, qui ignoret illos pseudomathematicos fuisse eos, qui, & quidem aptius, & Genethliaci, & Chaldaei, & Iudicarii dicebantur. quorum doctrina nullo mihi pacto probari pòtest, cùm nullis nec experientijs, nec rationibus fulciatur, sed mera vanitas, atque impostura, saepe etiam superstitio sit. ut propterea mirandum sit, cur non penitus huiusmodi artes de medio tollantur, sed quod ait Cor. Tacitus lib.I. histor. hoc genus hominum potentibus insidum; sperantibus fallax, in Ciuitate nostra, & vetabitur semper, & retinebitur. lege libros 12. Pici Mirandulani contra Astrologos. accedunt praeterea Tycho, & Keplerus, qui quamuis Astronomi, Astronomiam tamen istam pluribus improbarunt. Calumniosè tamen ii faciunt, qui illorum nebulonum culpam in omnes Mathematicos transferre gestiunt. Atque haec tantum modo dicta velim, ne simpliciores ab istis calumniatoribus decipiantur. Biancani, *De Mathematicarum Natura Dissertatio*, 26. The text above is adapted from the translation by Gyula Klima, in Mancosu, *Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century*, 203. In the original translation the terms Genethliaci, Chaldaei and Iudicarii were translated respectively as astrologers, fortune-tellers, and soothsayers, which does not transmit the subtler distinction between these and the term astrologer (*astrologus*).

he does not develop the topic enough to provide a broader picture of his stance on the actual practice of astrology.

Scheiner's *maculata astrologia*

Another key figure in Jesuit astronomy, Christoph Scheiner, was born in Wald, Germany. He attended the Jesuit school in Augsburg, joined the order in 1595 and was trained in metaphysics and mathematics in Ingolstadt. There are references to astrology in some of his works on mathematics and astronomy. In his *Disquisitiones mathematicae*, when discussing the various mathematical sciences, he refers to astronomy and astrology:

Since, true astronomy taken generally, includes all theory on those superior bodies, to the extent that the forces and influences of these [superior bodies] on these inferior things depend on the various aspects of the heavenly bodies, their accidents and events, and are accommodated to future outcomes, divinatory astrology, or judiciary, arises. However, to the extent that other absolute properties in some way are inherent to them, either derived from them, or belonging to them, are considered, such as number, shape, location, position, motion, time, light, colour, heat, roughness, hardness, etc. to that extent in a more restricted sense astronomy arises. A most noble science, most ancient, appeared along with Man, and to him almost congenital, and almost inborn to the human soul, by all always greatly esteemed.²³³

Here he simply presents a standard division between the function of astrology, which studies the effects of the different celestial configurations to know future events, and astronomy which studies the movements and properties of the celestial bodies. The latter he considers most acceptable and noble, to the implicit detriment of astrology. Curiously, he does not present any of the standard religious arguments. This is likely due to his swift dismissal of astrology of which he speaks no more in this text, in the same manner as Biancani.

However, Scheiner is best known for his work on sunspots and his dispute with Galileo as to their nature.²³⁴ Defending the perfection of celestial bodies, Scheiner believed that the sunspots were not imperfections on the Sun's surface, but planets that circulated around it in close proximity, in a similar fashion to Jupiter's satellites. It is within this notion that he again discusses astrology. The first instance is in his second publication on sunspots, *De maculis*

²³³ Quia vero Astronomia generatim sumpta, omnem de corporibus illis superioribus speculationem includit; idcirco quatenus illorum in haec inferiora vis atque influxus è varijs siderum aspectibus, experientijs atque eventis perpenditur, & in futuros eventus accomodatur, Astrologia divinatoria sive Iudiciaria consurgit: quatenus autem aliae ipsorum proprietates absolutae quodam modo ipsisque inhaerentes, aut ab ipsis profectae, vel ad ipsa pertinentes, ut numerus figura, locus, situs, motus, tempus, lux, color, calor, asperitas, durtia, &c. pensantur; eatenus Astronomia pressius accepta consurgit: scientia nobilissima, antiquissima, cum ipso homine exorta, Ipsique quasi congenita, animaeque humanae paene agnata; ab omnibus semper maximi aestimata. Christoph Scheiner, *Disquisitiones mathematicae, de controuersiis et nouitatibus astronomicis* (Ingolstadt: Elisabetha Angermaria, 1614), 15–16.

²³⁴ See, Galileo Galilei and Christoph Scheiner, *On Sunspots*, ed. Eileen Reeves and Albert Van Helden (Chicago: University Of Chicago Press, 2010).

solaribus et stellis circa Iovem errantibus, where he leaves some room to reflect on the implications of this new finding to astrology:

This in the meantime should not be passed by in silence that, by these satellites of the Sun, of whatever nature they turn out to be, whether they are homebred slaves or acquired from elsewhere, an enormous defeat is inflicted on divinatory astrology, especially on the genethliacal kind (I shall not delay on the prediction of weather here). As these bodies are of an immense size and as they affect the Sun diversely, intercepting its light that is directed to us, refracting, reflecting, retarding, enlarging or condensing, and at the same time diverting its natural effects on these inferior things, and thus are very powerful. If a single conjunction of a Mercury and the Sun can have so much effect on our things, in the judgement of the astrologers, what would be the effect of so many continuous conjunctions of these bodies with the Sun (of which several are as large or even larger than several planets)? As the judiciary [astrologers] have known nothing about these things up to now, it is obvious the science they have displayed up to now is a mere fortuitous and audacious divination, instilling little terrors. Of these and many other things, their proper place and way to discuss will be given, if I do not fail. I wanted simply to warn here that these announcers of future events should consider what they are doing, when they ignore the most important causes in their judgement that are hidden in phenomenon like this.²³⁵

Here he presents an astrological argument. If astrologers consider conjunctions of Mercury to the Sun in their judgements, why not consider as well the continuous conjunctions of these solar satellites? They are not only greater in number, but also larger than most planets, so their influence should not be overlooked. Their presence ought to create enough interference in the luminary's natural effects to prove astrological predictions flawed, fortuitous and incomplete. Thus, he warns astrologers that they are ignoring important elements in their practice which thus far were unknown. It is obvious that his mind is set on the more divinatory aspects of astrology (thus illicit or close to being illicit), to which he is just as critical as Biancani was. In particular, Scheiner is more belligerent in what concerns nativities, a facet of astrology more prone to interfere with human free will, though he does not mention this explicitly.

The second reference to astrology comes more than a decade after, in his great work on sunspots, *Rosa Ursina sive Sol ex admirando facularum & macularum suarum foenomeno varius* (1626–30). In the section 'From the solar phenomenon, truths for astrology' ('Ex solari

²³⁵ Illud interim tacendum non est, ab his Solis satellitibus, cuiusquemodi tandem sint indolis, siue vernae siue coempta aliunde mancipia exstant, Astrologiae divinatrici, genethliacae praesertim, (nam tempestatum praedictiones hic non morer) ingens infligi vulnus: cum enim corpora ista sint vastitatis praegrandis, diversimodè utique Solem afficiunt, lucem ipsius ad nos directam intercідendo, refringendo, reflectendo, dilatando, condensando, & simul naturales suas affectiones in haec inferiora derivando, & sic plurimum valent: quod si una alicuius Mercurii cum Sole conventio tantum in nostratia potest, iudicio Astrologorum, quid non poterunt tot continuae Solis cum istis corporibus (quorum pleraque planetas plerosque aut aequant aut superant) coniunctiones? De quibus cum hactenus nihil cognorint iudicarii, manifestum sit scientiam ipsorum hactenus ostentatam, meram fortuitam & temerariam fuisse divinationem, terculamenta incusserit. Sed de his & aliis pluribus dabitur, nisi fallor, suus & locus & modus disputandi. Monere hic tantum volui, videant quid agant praesagi isti futurorum eventuum enunciatores, si tamen causas praecipuas, illorum iudicio, quae in hisce phaenomenis utique latent ingnorant. Christoph Scheiner, *De maculis solaribus et stellis circa Iovem errantibus* (Augsburg: Ad insigne pinus, 1612), 51.

phaenomeno. Veritates pro Astrologia') he further develops his views regarding the consequences of these solar phenomena to astrology, at the same time revealing more on his posture towards astrology:

The astrologer predicts various effects and future events of sublunary matters, among other things, etc. based on the celestial movements and on the relation, the position and aspect (among which the conjunctions produce the greatest [effects]) of the Sun with various celestial bodies, but how true, how good [his prediction is] can be shown uniquely in this phenomenon of the Sun. From this [phenomenon], although by going through each [evidence] singly, I could offer many truths, but because finally the time is short, I take the advice of brevity, and leave a lot to the genius and sagacity of the reader, this time I propose one truth that is worth all others as an example. From this phenomenon of the Sun the vanity of judicial astrology can be deduced very clearly. For, since from this phenomenon results the continuous variation of the Sun, it is necessary that all influences of the stars similarly are changed. This condition of the atmosphere about which they treat either little or nothing, thoroughly destroys their foolish foundations, that were arbitrarily deduced from the aspects and dignities of the planets.²³⁶

In this first section he revisits the same argument presented in 1612. Since conjunctions are the strongest of planetary interactions from which the astrologers derive their judgements, as they know little or nothing of these planets (sunspots) which continuously make conjunctions with the Sun and change its qualities, then their astrological judgements are completely arbitrary and are destroyed by these new discoveries. He then proceeds by citing a large portion of Octavio Farnesi's (1598-1643) *Quaestiones definitae ex triplici philosophia, rationali, naturali, morali* (Parma, 1613) on the matter of celestial influence and astrology:

Listen to what on this matter Octavius Farnesi, very learnedly disputes in *Quaestionibus Phylosophicis*, book 2 of Natural Philosophy, chapter 13, page 117, now that is in the thesis 756, 757, 758. There is in men, he says, some indirect motion of the heaven, when corporeal organs are in a better or worse condition; however, there is no direct [motion] on the soul itself. *The divinatory art which is called Astrology is therefore a liar; rightly are expelled from the society of mortals the astrologers [Genethlaci] that practice divination of future contingents that they cannot know from the course and position of the stars. Dreams are the future things they read from the configuration of the stars as if they were elements, and however it is no wonder that, if many of [those future things] are untrue, some truth sometimes arises, as if by chance, as some happen among those shown in dreams.* Until now it has been believed that these same diviners could easily notice in what star and what state of the heaven anyone has been conceived and in which horoscope he was born, and by these it is also given that they conjecture about the condition of the body and about its complexion. *How uncertain should these very things now be considered, after the addition of stars by new instruments, and when so many*

²³⁶ Astrologus ex motibus caelestibus & siderum varia ad Solem habitudine, situ & aspectu, inter quos coniunctiones maximi fiunt, varios effectus & rerum sublunarium futuros eventus inter caetera praedicat &c. sed quam vere, quam bene, vel ex hoc unico Solis Phaenomeno ostenditur. Ex quo, quamquam per singula eundo, possem Veritates multiplices proferre, quia tamen tempori parco, brevitati consulo, & studiosi Lectoris ingenio & sagacitati multa committo, unam dumtaxat instar omnium hac vice propono Veritatem, videlicet: Ex hoc Solis Phaenomeno Astrologiae Iudicariae Vanitas clarissimè detegitur. Nam cum ex hoc Phaenomeno perpetua Solis variatio accadat, necesse est omnes Astrorum influentias similiter alterari. Atmosphaerae quoque conditio, de qua ipsi vel parum, vel nihil tractant, ipsorum nugacia fundamenta, ex aspectibus & dignitatibus planetarum arbitrarie deducta, penitus destruit. Christoph Scheiner, *Rosa Ursina Sive Sol: Ex Admirando Facularum et Macularum Suarum Phaenomeno Varius* (Bracciano: Andreas Phæus, 1626), 604.

*spots have been observed up to now in the Sun, wandering over this immense field of light by no law that could have been observed up to now?*²³⁷

The arguments here presented by Farnesi are quite supportive of Scheiner's position. He begins by highlighting that the celestial bodies influence in human beings is constrained, at least partially, to the organs of the body, but not the soul. Thus, the astrology of nativities is but a mere lie and its predictions on human life based on the configurations of the stars, a dream. Until here he presents the customary critique against the exaggerations of the astrologers in what concerns human births, but then, it turns against parts of astrology usually considered licit and valid for medicine such as complexion and conditions of the body. He argues that the celestial novelties brought forth by the 'new instruments' and unaccounted for thus far render astrological theory unreliable, and questions if there is a law to include them. It is here that Scheiner continues in his own words:

In fact, I say that if they attribute to the ecliptic nodes, if to the head and the tail of the dragon, as well as to the eclipse of the Moon and the Sun, a strong force, confirmed primarily, as they say, by the experiences of the ancients, then certainly they would concede much more to the more important solar spots. Indeed, they truly also eclipse the Sun, and while they don't hide such a great portion from our sight, nevertheless they induce that eclipse for the whole [terrestrial] globe, which the moon never does, moreover, the interposition of any spot between us and the Sun does not last for only three or four hours, but for many and several days. As however the generation of the spots and *faculae* cannot be predicted so the operations and the particular influx of the Sun cannot at all be predicted from them.²³⁸

Again, Scheiner uses an astrological argument to deal with the celestial phenomenon of sunspots, and a very perspicuous one. He equates the supposed transit of the spots (in his view planets) to eclipses, a well-accepted tool in astrological prediction. The partial occultation of the Sun by these bodies, though not so visible, reaches the entire Earth (differently from a solar eclipse that only impacts a small portion of the surface) and last much longer. Thus, by the

²³⁷ Audi quid in hanc rem doctissime disputet, Octavius Farnesius, in Quaestionibus Philosophicis, Lib. 2. Philosophia Naturalis, cap. 13. pag. 117. Num seu Thesibus 756. 757. 758. Est aliqua inquit, indirecta caeli motio in hominem, dum organa corporea, vel melius vel deterius habent, directa vero in ipsam animam nulla est. *Mendax ergo est divinatrix, quae dicitur Astrologia; meritoque ex convictu mortalium exturbantur Genethlaci, qui de futuris contingentibus ex stellarum curso, situque divinationem profitentur, quam nosse non possunt. Somnia sunt quae futura praelegunt in stellarum, quasi elementorum compositione: nec vero mirum est, si ubi multa mentiti sunt, aliquid veri eueniat aliquando, sicut casu sit, ut utri aliquid eveniat ex ostentis somniorum.* Creditum est hactenus, hos ipsos divinatores facile notare potuisse, in quo quisque sidere, quouè caelesti statu conceptus fuerit, & in quo natus horoscopo, datumque iis etiam est, ut de corporis habitu deque complectione sumerent coniecturam; *Sed haec ipsa, quam nunc incerta censenda sunt, facta additione astrorum per nova instrumenta; totque Maculis in Sole deprehensis, nulla certa lege, quae hactenus observari potuerit, in immenso illo lucis campo pererrantibus?* Scheiner, 604.

²³⁸ Haec ibi, & recte quidem; Nam si nodis Eclipticis, si Capiti, inquam, & Caude Draconis, adeoque Eclipsibus Lunaribus & Solaribus, magnam vim & praerogativam antiquorum experiētiis (ut aiunt) roboratam, attribunt; Maculis certe solaribus insignioribus multo plus deferent. Nam Solem etiam ipsae Eclipsant: & licet tantam ipsius portionem ad visum nostrum non abscondant, inducunt tamen illam Eclipsin toti orbi, id quod Luna nunquam facit; deinde Maculae cuiusvis inter Nos & Solem interpositio non durat tribus aut quattuor tantum horis, sed multis plerumque diebus. Ut autem Macularum & Facularum generationes praesciri nequeunt, ita operationes Solis & influxus specialis praesagiri ab ipsis nequaquam potest. Scheiner, 604–5.

common accepted astrological reasoning, an event that is more global and of greater duration, should have a stronger and noticeable effect. But then, he cautions that despite their strong effect, since these spots are unpredictable, they cannot be used for prediction. Thus, it can be inferred from his words (and his quotation of Farnesi) that astrological prediction becomes impossible, and therefore astrology fails, tainted by the sunspots, because these strongly influential phenomena can be neither forecasted for use in prognostication, nor extrapolated for the study of past events. Once more, it must be noted that celestial influence is not in question here, but astrology as a knowledge capable of interpreting it; the focus of the critique is on the arguments and doctrine used by the astrologers, not the concept itself. Considering his written word, Scheiner would not be someone that endorsed or even practiced astrology. Despite showing a considerable knowledge of its theoretical principles, he shows no liking for astrology nor astrologers.

Guldin's ordination

Paul Guldin (1577–1643), also Paulus Guldinus, and by birth Habakuk Guldin, was born in Saint Gall, Switzerland. Of Jewish descent, but raised in the Protestant faith, he converted to Catholicism and joined the Society in 1597. He learnt mathematics with Clavius at the Collegio Romano, where he later became a teacher, and afterwards in Graz and Vienna. Guldin is chiefly known for his works on the centres of gravity. He corresponded with Kepler and offered him a telescope made by his fellow Jesuit Nicolas Zucchi.

Guldin discusses astrology in the introductory section of his work *De centro gravitatis trium specierum Quantitatis continuæ* (Vienna, 1635), titled ‘Introductory statements to mathematics that convey the description, order and division of the mathematical disciplines’ (Prolegomena mathematica quibus disciplinarum Mathematicarum Descriptio, Ordo, & Divisio traditur).²³⁹ Here he presents the various parts of mathematics where he introduces astrology (items 24 to 27).²⁴⁰ First, he begins by distinguishing two main divisions in the general science of astronomy or cosmography, which are uranoscapy, that is astronomy proper, and judiciary, which is astrology:

24. Now the fourth and most excellent [part] remains to be subdivided, subordinate to geometry especially, and the truly heavenly science, astronomy, which it pleases several

²³⁹ Paul Guldin, *De centro gravitatis trium specierum Quantitatis continuæ. Liber Primus* (Vienna: Gregorius Gelbhaar, 1635), 11–13.

²⁴⁰ For a discussion on Guldin stand on the division of mathematics in comparison with Clavius, see Rivka Feldhay, ‘The Cultural Field of Jesuit Science’, in *The Jesuits: Cultures, Sciences, and the Arts, 1540-1775*, ed. John O’Malley et al., vol. 32 (Toronto: University of Toronto Press, 1999), 107–30.

moderns to call by the more general term, cosmography or knowledge which considers in various ways the whole machine of the world [Universe], and its principles, and dispositions. We will first subdivide it into uranoscopia or astronomy, and into judiciary, which they now call by its own designation, astrology.²⁴¹

Then, he defines astrology's object as the study of the prognostication of future events by the celestial configurations and addresses further subdivisions. Interestingly, he chooses straightforwardly not to discuss the matter of the truth or falsity of astrological predictions:

25. Astrology is what teaches the foreknowledge of future events from the nature, position, motion of the celestial bodies, and also from the various configurations and aspects between them ([whether it teaches] either truly or falsely it is not up to us to decide in this place), whence it is called prognosticatory or divinatory. Because, however, the natures, strengths, and qualities of the celestial bodies are considered, either absolutely and as they are, or in relation to another, so it is divided first in two parts, of which the first, called introductory, is subdivided into canonical and thematic. Canonical is that which dwells only on the principles and natures of the planets, and of the remaining stars, and the parts of the heavens, and of the mixtures and relations between these same [celestial bodies], and from where, so to speak, the canons of the [celestial] influences are constructed. Thematic, however, is that which teaches us to erect the celestial figure for a given time, which they call *thema* or celestial scheme, in which mostly have to be observed especially the order of the twelve houses, as well as the distribution or inscription of the celestial bodies and signs in them.²⁴²

Thus, according to Guldin the first part of astrology, introductory, deals with the theoretical corpus of the discipline. It is further divided into canonical, which addresses the foundations and principles of the astrological corpus, and thematic, which is concerned with the calculation of the astrological figures (and presumably other computations). He then presents the second part of astrology which handles the practical application which he calls judiciary, exercitatory or operative, following a similar nomenclature to that of Clavius. Once more, he subdivides it, this time in four parts, each concerning a different application of astrology:

26. The other part which directs the dispositions of the celestial bodies in relation to each other, which is both called properly judiciary, and called by some exercitatory or operative, is divided into four parts. The first, which is called catholic or general, concerns the status of entire world, namely the birth, changes and death of cities, kingdoms, empires and monarchies; and also, where and when peace, war, divisions,

²⁴¹ 24. Quarta nunc eaque præclarissima restat subdividenda, Geometriæ potissimum subalternata, & verè Cælestis Scientia ASTRONOMIA, quam magis generali vocabulo Cosmographiam, sive Scientiam quæ totam Mundi Machinam, eiusque principia, partes, & affectiones variè confiderat, appellari plerisque recentioribus placuit. Eam primo subdividemus in Uranoscopiam, sive Astronomiam, & in Judiciariam, quam proprio vocabulo Astrologiam nunc vocant. Guldin, *De centro gravitatis trium specierum Quantitatis continuæ. Liber Primus*, 11.

²⁴² 25. Est autem Astrologia quæ ex Syderum Natura, positu, motu, eorundemque variis inter se configurationibus, & Aspectibus, futuros eventus præcognoscere docet (verè an falsè, ad nos hoc loco non spectat determinare) unde & Prognosticatrix seu Divinatrix dicitur. Quia vero syderum naturæ, vires, ac qualitates considerantur vel absolutè, & prout in se sunt, vel in ordine ad aliud, idcirco in duas Partes primo tribuitur, quarum prior, Introductoria dicta, subdividitur in Canonicam & Thematicam. Canonica est quæ circa principia solum ac naturas Planetarum, reliquorumque syderum ac cæli partium, eorundemque inter se commixtiones & habitudines versatur, & inde quasi Canones influentiarum extruit. Thematica vero est, quæ ad datum tempus erigere figuram docet cælestem, quam Thema, vel etiam Schema cæli appellant, in qua præcipuè observanda veniunt, ordo 12 domiciliorum, tum syderum ac signorum in ea distributio ac inscriptio. Guldin, 11–12.

pestilences, earthquakes and deluges may come to pass. The second, which we call meteorological, handles the various states of the air and those things that follow, such as health, pestilence, abundance or scarcity of yearly crops, inundation, etc. The third, is properly called nativities [*genethliaca*], and examines based on natural conjectures, the personal life of Men, both with respect to the state of the body, as well as prosperity, status, and the various inclinations of the soul. The fourth makes judgements about the beginnings of operations, actions, things and illnesses, and also elections and revolutions, etc.²⁴³ And it is traditionally held that this one is very useful to navigation, agriculture and medicine, which I think can be labelled particular or special.²⁴⁴

Here instead of the more traditional division into revolutions, nativities, elections and interrogations, Guldin presents a noteworthy variation concerning his first two divisions. Traditionally the subject of the state of the world and meteorology are included in the part of astrology called Revolutions of the years of the World or ‘General Astrology’. What is presented is a division of revolutions in two separate topics. There might be several reasons for this. Perhaps the two topics are considered distinguishable enough to be handled separately, despite their obvious overlap, in particular with regard the forecast of natural disasters. It could also be that it might be simply a rearrangement of subjects to compensate for the disappearance of interrogations, the fourth traditional division of astrology, as this became ill seen in the eyes of some authors, and after Sixtus’s bull a forbidden practice. On the other hand, this also appears to be simply the separation of the less sanctioned prognostications on the affairs of kingdoms and such, from the well-accepted forecast of the weather. It is only in the next item where he admonishes the ill practices of incompetent or superstitious astrologers that Guldin states his source for this division, Giovanni Antonio Magini, whom he quotes:²⁴⁵

27. However, many and different superstitions crept into this art, which must be distinguished from the true principles of this science, that should not be otherwise despised. Indeed, the experts of astrology themselves confess how difficult it is to judge on this part which we have called catholic. Hence Giovanni Antonio Magini, the distinguished [practitioner] of astrology, whom I have followed in this fourfold division, writes as follows: (Introduction to astrology, treatise I, chapter I) *it should not be seen as a surprise, if Albumasar with all his antiquity, as well as Ashenden, with most of the other recent writers treated so stupidly and obscurely of this science that God reserved for*

²⁴³ The inclusion of revolutions in this section is odd as it pertains to the first and second division, perhaps Guldin is using it in a different sense or it was listed here by mistake.

²⁴⁴ 26. Altera pars quae syderum affectiones in ordine ad aliud dirigit, quae & propriè Judiciaria est, & à nonnullis Exercitatoria seu Operatoria nominatur, in 4 partes subdividitur. Prima, quam Catholicam sive Generalem appellant, de universi Mundi statu est, de ortu nimirum, mutationibus, & interitu Urbium, Regnorum, Imperiorum, & Monarchiarum; ubi & quando pax, bellum, sectae, pestilentiae, terræmotus, & diluvia contingant. Secunda, quam Meteorologicam dicimus, de variis agit aëris constitutionibus, & de iis quae inde consequuntur, ut sunt salubritas, lues, annonae copia vel penuria, inundatio, &c. Tertia propriè Genethliaca dicitur, & de privata hominum vita tam quoad corporis statum, quam ad fortunam, conditionem, & varias animi inclinationes, ex naturalibus conjecturis judicat. Quarta de initiis operum, actionum, rerum, & aegritudinum, atque de electionibus, & revolutionibus, &c disponit. Atque hanc Nauticae, Agriculturae, ac Medicinae magnopere inservire tradunt, quam Particularem, sive Specialem nominari posse judico. Guldin, *De centro gravitatis trium specierum Quantitatis continuae. Liber Primus*, 12.

²⁴⁵ He is quoting from the abovementioned *Isagoge in Iudiciariam Astrologiam* an introductory text to astrology which Magini included in several editions to his ephemeris, for example in Magini, *Ephemerides Coelestium Motuum*, 33r–48v. This text became an important source for Jesuit authors in their expositions of astrology as will be discussed further on.

himself and the intelligences. However, about the entire astrology, which, although he commends, he adds: although the Chaldeans, Arabs and Jews, and such uncultivated authors who are more eager for divination than is right, wishing to extend it, mixed with it many foolish nonsenses, for instance: lots or 'parts' of things, decanates or 'faces' of the signs, and images which they say arise with them [paranantellonta], duodenaria, novenaria, firdaria, light, dark, smoky, empty, masculine and feminine degrees, hours assigned to the planets, and other [things]. In fact, not only did they invent falsely these principles, but also they compiled whole treatises, such as [those on] interrogations, on talismans, and, for the greater part, on elections, without any natural foundation. How many people, both of the last century, as well as men of our age (I say nothing of those that followed the true path of science), by ineptly following the superstitious barbarity of the Arabs because of a certain easiness (in doing this), have run into many and greatest errors, so that not only are they laughed at by the common people, but also they are reprehended by wiser men, and not without reason also hated and held as suspect by the Catholic Church. This he said. To this I add that the scum of this kind of people have rendered infamous the name of mathematicians before emperors, as well as gentiles, before the Holy Fathers, as well as the experts in law, and especially among those, which did not learn to distinguish these men from true mathematicians (of whose disciplines they are completely ignorant, and hence are unworthy of the name of mathematicians).²⁴⁶

This is the only instance where he adds his own view by stating that these ignorant practitioners, give a bad name to true mathematicians on the eyes of the rulers, the people, as well as religious and legal authorities. Here is presenting the same concern as Biancani that the bad usages of astrology are damaging to the reputation of mathematics, about which he is discoursing in this entire section. However, while Biancani, as well as Scheiner offer negative views of astrology, Guldin deliberately chooses not to discuss the validity of its predictions. His objective is to place astrology within the map of knowledge of the mathematical sciences, something he does rather neutrally, respecting not only the structure of the discipline, but also its principles 'that should not be otherwise despised'. While in this text Guldin's personal position regarding to the practical application of astrology remains veiled, from his composed and almost impartial presentation as well as its appraisal of Magini, it could be assumed that like his teacher, Clavius,

²⁴⁶ 27. Irrepserunt autem in hanc artem superstitiosa multa & varia, quæ discernere oportet à veris hujus facultatis principiis, alioquin non contemnendis. Sane quanta sit difficultas judicandi in parte illa, quam Catholicam appellavimus ipsimet Astrologiæ periti fatentur, unde Joan. Ant. Maginus, insignis Astrologiæ, quem in hac quadruplici divisione secuti sumus, sic scribit: (Isag. Astrologiæ Tract. I. cap. I) *non mirum videri debet, si Albumassar cum tota vetustate, nec non Escuidus, cum plerisque aliis recentioribus scriptoribus, de hac scientia, quam sibi & intelligentiis reservavit Deus, tam stolidè & tenebrose pertractarunt.* De universa verò Astrologia, quam licet commendet, hæc subiicit: *Quamquam Chaldæi, Arabes, & Iudæi, talesque inculti Authores qui æquo divinandi cupidiores, eam amplificare volentes, multa inania deliramenta illi immiscuerunt, ut puta sortes seu rerum partes, decurias seu signorum facies, & simulacra que cum his cooriri dicunt, duodemarias, novenarias, firdarias, gradus lucidos, tenebrosos, fumosos, vacuos, masculinos, foeminimos, horas planetis assignatas, & alia. Quinimmo non solum hæc principia falsò sunt commenta, verum integros etiam tractatus, ut de interrogationibus, de imaginibus, & majori ex parte de electionibus, absque ullo naturali fundamento compilaverunt, quam quidem Arabum superstitiosam barbariem permulti, tum præteriti sæculi, tum ætatis nostræ viri (taceo hos qui veram scientiæ semitam sequuntur) ob quandam facilitatem ineptè sectando, in multos maximosque errores incurrerunt, ita ut non solum à vulgo irrideantur, à prudentibus reprehendantur, sed non immerito etiam exosi, & suspecti ab Ecclesia Catholica habeantur.* Hæc ille. Quibus addo faciem huiusmodi hominum, nomen Mathematicorum infame reddidisse apud Imperatores, etiam gentiles, apud Sanctos Patres, apud Jurisperitos, & præsertim apud eos, qui hosce homines à veris Mathematicis (quarum disciplinarum imperitissimi erant, unde & nomine Mathematicorum indignissimi), discernere non didicerunt. Guldin, *De centro gravitatis trium specierum Quantitatis continuæ. Liber Primus*, 12–13.

he accepts it as a valid knowledge within the respectable limits of natural philosophy and the Church.²⁴⁷

Sempill's proper practice

Hugh Sempill (or Semple, also Hugo Sempilius) was born in Craighait (or Craigievar), Scotland, around 1596 and died in Madrid in 1654. He entered the Society in 1615, became rector of the Scottish seminar in Madrid in 1627, and was also professor of mathematics at the Colegio Imperial.²⁴⁸ In his work *De Mathematicis disciplinis Libri duodecim* (1635), he presents a summary of the main mathematical disciplines, their subdivisions and applications.²⁴⁹ Book ten deals with astronomy and book eleven is dedicated to astrology. The latter is divided into four chapters where he discusses the legitimacy of astrology and presents its main applications. Chapter one, 'Which astrology is lawful, which is unlawful' ('Quae Astrologia sit licita, quae illicita') is the largest section of the entire eleventh book, seven pages long (from 229 to 236). The subject is developed in 22 items, mainly concerning the view of the Church on the matter and which parts of astrology can be practiced by a Catholic and which cannot. In the first 17 items he discusses the errors of the ancients regarding astrological practice and then presents an account of the opinion of several church authorities and authors on what can be predicted licitly by astrology. He concludes that, although astrology can be used by a Christian, the abuses of many astrologers led to the issue of the bull *Coeli et Terrae*, by Sixtus V. A complete transcription of the bull follows, after which he discusses the extent of its prohibitions, offering the opinions of several theologians as well as his own:

Between theologians, the pertinent understanding of this bull was much debated. Firstly, whether by looking at the stars, not only storms, sterility and fertility of the earth, but also, by considering the moment of birth, the temperament and inclinations of men, may be predicted, after this bull of Sixtus V. I assert that they may be predicted; for [past] experiences of the most luminous and most esteemed testimonies demonstrate that the abovesaid is covered by this science. This is maintained by Abbas, chapter 2, no.7, *De Sortilegiis*, Caietanus 2.2, qu. 95, a.5, at the end, Suárez, tom. 1, *De Religione*, book 2,

²⁴⁷ His position might be more clearly stated in some of his surviving personal papers, a matter that would require further research and it is currently outside the scope of this study.

²⁴⁸ For more information see Carlos Sommervogel, ed., *Bibliothèque de La Compagnie de Jésus*, vol. 7 (Paris: A. Picard, 1896), col. 1117; Sidney Lee, ed., *Dictionary of National Biography*, vol. 51 (London: Smith, Elder & Co, 1897), 235. On his work at the colleges of Madrid see Agustín Udías, 'Los libros y manuscritos de los profesores de matemáticas del Colegio Imperial de Madrid, 1627-1767', *Archivum historicum Societatis Iesu*. LXXIV, no. 147 (2005): 369-448.

²⁴⁹ Hugh Sempill, *De mathematicis disciplinis Libri duodecim* (Antwerp: Balthasar Moreti, 1635). Other works by Hugh Sempill are *Experientia Mathematica* (Madrid 1642) and *Dictionarium Mathematicum* (never printed). He is also the author of several manuscripts such as Biblioteca Nacional de España, 'Historiarum sui temporis de Philippi IV Hispaniarum et Indiarum Regis Regimine. tomus secundus', MSS/1822 (1601); 'Parecer del Padre Hugo Sempilio sobre el riego de los prados de Aranjuez y lugares circunvecinos', MSS/18665/12 (1637); 'Parecer del Padre Hugo Semple de la Compañía de Jesús, Acerca de las cosas que se han visto en el cielo de dos meses a esta parte, desde el 5 de Noviembre al 8 de Diciembre de 1637', MSS/18665/13 (1637).

De Superstitione, chapter 11, from numb. 8 to 11, Salas, 1.2, question 9, article 5, tract. 5, disp. 2, section 8, no. 79, Manuel, first volume of the *Summa*, chapter 7, number 3, Thomas Sánchez, book 2, *Summae*, chapter 38, number 28. Nor is this judgement condemned, in his own motion, by Sixtus V, but only when cases are predicted dependent on free will, as Suarez rightly evaluates in the above place no. 12. Lastly, Suárez and Sánchez properly warn in the above place, that this divination on temperament and inclinations cannot go beyond the limits of conjecture and suspicion without being a sign of audacity, imprudence and wrong telling.²⁵⁰

Following for the greater part the arguments of Suárez, almost all of the discussion is centred around the case of nativities and this appears to be an important topic to him. After first asserting that it is possible to predict human inclinations and temperament, he continues the discussion in items nineteen and twenty. In his next point he questions what kind of censorship should be brought against the astrologer who makes judgements on matters of free choice:

Secondly, one can ask, what punishment is due to an astrologer who dares do put forward as certain judgements of actions that depend on human free will and chance events, and claims that he can do it licitly.²⁵¹

He concludes it to be a great crime of heresy, a fact supported by many Christian authors, but he never denies the possibility of astrological prediction on these matters of freedom, he only asserts that it is forbidden to claim it as certain. Subsequently, in his third point (item 20), he presents a lengthier discussion on the admissibility of slender conjecture on matters dependant on free will and chance events:

Thirdly one should discuss if slender conjectures about things dependent on freedom or chance events are admissible.²⁵²

This is indicative that he is well aware of the problems faced by practitioners regarding the use of astrology in human affairs. If the boundaries of the restrictions of the Church are to be rigidly interpreted, they will clash with supposedly licit astrological practices, even when applied in the context of medical matters. Therefore, he questions the possibility of some level of conjecture, even if slender, in topics concerning actions of free will. Here he makes three stances. The first is a rather perilous topic, as he admits that slender conjecture on matters of

²⁵⁰ Inter Theologos agitantur multa quae ad huius Bullae intelligentiam pertinent. Primum est, an ex astrorum aspectu non tantum tempestates, sterilitas & fecunditas terrae, sed etiam, considerando nativitatibus punctum, temperamenta & propensiones hominum praedici possint post hanc Sixti V Bullam. Affirmo praedici posse; quia experientia luculentissimis & probatissimis testimoniis docuit, praedicta scientiae subiaceret. Ita tenent Abbas cap.2, n.7, de Sortilegiis, Caietanus 2.2, qu.95. a.5, in fine, Suarez Tom.1, De Religione, lib.2, de Superstitione, cap. 11, à num. 8 ad 11, Salas 1.2. quaest. 9, art. 5, tract. 5, disp. 2, sect. 8, n.79, Manuel 1. Tomo Summae, cap.7. num.3. Thomas Sanchez lib.2, Summae cap.38, num.28. Nec hoc iudicium damnatur in motu proprio Sixti V sed tantum, quando casus à libero arbitrio pendentes praedicuntur, ut rectè expendit Suarez ubi suprà n.12. Benè tamen monent Suarez & Sanchius ubi suprà, hanc de temperamento & inclinationibus divinationem coniecturae & suspicionis terminos egredi non posse sine temeritatis, imprudentiae & mendacii notâ. Sempill, 235.

²⁵¹ Secundo quaeri potest, quâ censura dignus sit Astrologus, qui iudicia, tamquam certa, de actibus humanis à libero arbitrio pendentibus & casibus fortuitis ferre audeat, & licitè fieri posse affirmat. Sempill, 235–36.

²⁵² Tertiò discutere placet, an tenuis coniectura de rebus à libertate pendentibus & casibus fortuitis admitti possit. Sempill, 236.

free will can be obtained from the stars, except of course in matters unacceptable by the bull. Thus, the astrologer should not suffer penalty for doing so:

I first say, except in the places where it is not accepted by the Bull of Sixtus V, that such slender conjecture from the stars can be admitted, and the astrologers should not suffer any penalty for this reason, because conjectural cognition on things that depend on free will can be obtained from the stars.²⁵³

He then continues this idea in the second stance where he considers that if those studying the effects of the stars judge the matter to be uncertain, they should not be admitted in mortal sin:

Secondly, I say, also when the bull of Sixtus V is accepted, if once or several times, someone examines the stars in their effects, judging the matter to be uncertain, then he will not contract mortal penalty.²⁵⁴

While in the second point (item 19) he considered that predicting things as certain should be severely punished, here he considers otherwise, if the aforementioned predictions of slender conjecture are offered as uncertain. Thirdly, he reinforces his arguments considering (as Suárez did) that if, besides the celestial bodies, other circumstances and causes are taken into consideration, as for example the person's temperament and previous actions, then the judgement is lawful:

Thirdly, I say that when this plausible conjecture is based not on the stars alone but also on other circumstances and causes, as from the temperament of the person and his other actions, and similar circumstances, it is a lawful conjecture.²⁵⁵

Here his concern regarding the judgement of nativities becomes more evident as he gives temperament as a means to make judgements on a person's possible actions. These would be the arguments of a practitioner when confronted with the bull's restrictions. He recognizes in item 19 that astrology can make judgements on matters of free will or chance events, but these are not permitted to a Christian by the Churches' law. There is in his words a subtle distinction between what astrology can do, and what is permitted to a Christian astrologer. This becomes more evident in matters of human behaviour, and in this regard, many Christian astrologers accepted the arguments of Thomas Aquinas (as discussed above) on the celestial influence of human actions to validate the interpretation of nativities. Thus, Sempill advances the possibilities of some degree of conjecture in matters of free will, mainly referring to human

²⁵³ Dico primò, seclusâ Bullâ Sixti V. in locis ubi non est recepta, hanc tenuem coniecturam ex astris solis admitti posse, nec ullâ poena plectendum Astrologum hac de causa; quia coniecturarîs cògnito pendentium ex libero arbitrio haberi potest ex astris. Sempill, 236.

²⁵⁴ Dico secundò, etiam admissâ Sixti V. Bullâ, si semel vel iterùm quis astra inspiceret in suis actionibus, iudicando rem esse incertam, tunc culpam mortalem non admitteret. Sempill, 236.

²⁵⁵ Dico tertio, quando non ex astris solis, sed etiam ex aliis circumstantiis & causis sumeretur haec coniectura probabilis, ut ex temperamento personae & aliis eius actibus & similibus circumstantibus, esset licita coniectura. Sempill, 236.

behaviour, as well as the prediction of events only as possibilities, therefore uncertain and free of the Bull's strictures against predictions of events as certain. He closes this argument by noting that the study of the movement of the stars as a part of natural knowledge, is above all part of foresight. Here he brings together the authority of Suárez and 'Leonardus' which he quotes:²⁵⁶

The reason is obvious: for such observation is not divination but providence: but to consider the stars as contributing together with such circumstances belongs to natural astrology which is licit by the judgement of all.²⁵⁷

Lastly, he then addresses whether the prediction of the future is a mortal sin, especially after the bull of 1586. While Suárez considers it is not, Sempill adheres to Tomás Sánchez's opinion, that it is a mortal sin. He closes this first part of the book by addressing the matter of those who investigate hidden things (past or present) by means of astrology. These entail the investigation of such things such as secret thefts, treasures, and virginity, which Sempill condemns as superstitious and forbidden. He also notes the grave sin of those divinations of hidden things that are surely aided by demons and admonishes those who 'by the Astrolabe recognize the hidden theft of things without the intention of evoking a demon' that they are still in grave sin and are forbidden from ministry at the altar for one year – which is clear a rule for priests. Curiously, he makes no reference to Urban VIII's bull of 1631; either he did not consider it relevant for the discussion or the text had already been written at the time of its issuing.

The remaining chapters which address astrological doctrine and practice are short and concise. They cover in little more than four pages (from page 237 to part of page 241) what Sempill considers to be the three main applications of licit astrology: meteorology, elections and nativities. In chapter two, devoted to meteorology (*De temporum mutatione*), Sempill discusses lunations, eclipses and major conjunctions. He gives summarized instructions on the interpretations of eclipses, listing the expected effects of each planet when it rules the eclipse. In the matter of the great conjunctions of Jupiter and Saturn he addresses the well-known discussions on their value in the light of Ptolemaic doctrine, quoting Pico della Mirandola, Pedro Ciruelo and William of Auvergne. He also notes the condemnation by the Church fathers of the claims by Albumasar that the conjunctions would predict the coming of new prophets and the rise and fall of sects and religions.

²⁵⁶ Perhaps the Jesuit theologian Léonard Perin (1567-1638).

²⁵⁷ Ratio in promptu est; quia talis observatio non est divinatio, sed providentia: at cum talibus circumstantiis considerare astra tamquam aliquid conducentia, pertinet ad Astrologiam naturalem omnium iudicio licitam. Sempill, *De mathematicis disciplinis Libri duodecim*, 236.

The third chapter is on elections, a topic that was not without controversy as it had a wide application to human affairs. Sempill immediately clarifies these as being useful and licit elections used for medicine and agriculture:

By elections it is generally meant the proper times to execute these or those actions observed from the dispositions of the heaven. And I do not reject, as do some astrologers, all elections, but only those which have no foundation in nature, either those that are merely fortuitous and voluntary, or those whose causes it would be impious to seek in the stars, as for example what time shall one be baptized. Among the licit I admit therefore the following.²⁵⁸

He then addresses several examples of the proper use of elections: for medicine (phlebotomy, bathing, scarification, and receiving medication); husbandry (shearing of sheep and such, castration and the killing of animals for meat); also weaning of children, sowing and travel. A few practical examples are given, such as bathing where Sempill states that experience teaches that a felicitous bath happens when the moon is in the signs of Libra or Pisces and applies to Venus with a good aspect.²⁵⁹ In his presentation of licit elections he quotes the authority of Jean Ganivet (likely the *Amicus Medicorum*), Johannes Schöner (*Isagogae Astrologiae Iudiciariae*) and David Origanus (likely one of his ephemerides). Lastly, he refers to the ‘truly ridiculous and superstitious’ illicit elections, which should not be made for things related to the human free will:

I judge truly ridiculous and superstitious, to appoint a time when one should deal with magistrates, religious persons, elders, farmers, soldiers, women, engineers, teachers; also, to consider the time to make, repair, buy and wear clothing, which is only governed by human discretion and the decision of the one who acts, when conceded by divine providence.²⁶⁰

The fourth and last chapter is dedicated to nativities. Having already discussed its licit and illicit uses, Sempill summarises in a general form the main steps for the judgement of nativities. First the judgement of the life of the native, noting the parents, then the ascendant and its ruler, next the luminaries, from which are inquired the Hyleg and Alcocodem; all this should be further examined by directions, annual profections, revolutions and transits. Then he presents the licit judgements which entail the determination of the lord of the geniture, the observation of the

²⁵⁸ Per electiones tempora tantummodò ex caeli dispositione ad has vel illas actiones obeundas commoda denotantur. Neque enim cum quibusdam Astrologis omnes electiones reiicio, sed eas quae vel in naturâ fundamentum non habent, vel eas quae merè fortuitae & voluntariae sunt, vel eas, quarum causas inquirere in astris impium est, ut, quo tempore quis baptizandus sit: inter licitas autem electiones sequentes admitto. Sempill, 240.

²⁵⁹ ... quia experientia docet, feliciùs balnea contingere Lunâ ♎ [Libram] aut ♊ [Pisces] occupante, & Veneri fausto aliquo radio aplicante, &c. Sempill, 241.

²⁶⁰ Ridiculum verò & superstitiosum iudico, tempus assignare quo agendum sit cum Magistratu, cum Religiosis, cum senibus, cum agricolis, cum militibus, cum feminis, cum ingeniosis, cum praeceptoribus; item tempus deputare parandis, emendis & induendis vestibus, quae ab hominum prudentiâ & agentis iudicio, accedente diuinâ prouidentiâ, penitus gubernantur. Sempill, 241.

planetary hour, and the temperament of the native, if sanguine, phlegmatic, choleric, or melancholic; then, the form, stature and bodily tendencies should be judged, as well as behaviour, that is, the natural inclinations, and also, illnesses and natural death. Afterwards Sempill enumerates the illicit judgements, considered foolish and without any natural basis, and which are forbidden to all Catholics. These concern such things as the wealth of the native, the conditions of brothers and sisters, the status of the parents and concord between them, the number of children, their gender and condition, friends, and enemies.

In the entire book it is quite clear that he is highly concerned with discussing the lawful aspects of astrology, more than teaching its practical application. Nonetheless, he offers several highlights of actual astrological doctrine, being one of the few published Jesuit authors to provide examples of astrological practice, even if in a very abridged form. The very fundamental concepts of astrology are given in book ten, *on astronomy*, in chapter ten, ‘On the properties of the planets’ (‘De planetarum proprietatibus’). Here Sempill addresses the qualities of the planets and their natures, adding both their essential and accidental dignities, and also a brief description of the twelve celestial houses (pages 224 to 226). His doctrine is quite standard and in no part does he acknowledge the celestial novelties or their importance for astrology.

Sempill’s text on astrology was clearly written to serve as a guide. It focuses above all on discussing the licit facets of astrology and on highlighting its main and proper applications; it draws the reader’s attention to any parts of the doctrine that are either under criticism or debated. Despite being quite short it presents a very good summary of the matter of astrology and its practice in the seventeenth century. In fact, Hugh Sempill reveals himself not only quite knowledgeable of the theological issues surrounding the practice of astrology, but also of its doctrine, sources, applications and internal debates. His list of cited astrological authors is impressive and supports his scholarship on the topic: Ptolemy, Albumasar, Alcabitius, Haly, Ciruelo, Pico della Mirandola, Origanus, Ranzovius (Heinrich Rantzau), Leopold of Austria, Pontanus, Magini, Cardano, Garcaeus, Gaurico, Schoener, and Jacob Ganivet. In the theological and religious field, he also shows an ample erudition, referring to the authority of Aquinas, his fellow Jesuits Francisco Suárez, Tomás Sánchez, Francisco de Toledo, Juan de Salas, Gregorio de Valencia, Benito Pereira, Martin Del Rio, and Alessandro De Angelis, as well as other well-known theologians such as Manuel Rodrigues, Thomas Cajetan, Domingo de Soto, Martín de Azpilcueta, and Gregory Sayer.²⁶¹ His own posture on astrological practice

²⁶¹ Besides Thomas Aquinas, *Summa* and Sixtus V’s bull, Sempill quotes among others: Juan de Salas (Johannes de Salas), S.J. (1553-1612); Gregory of Valencia S.J. (1549-1603), also known as Gregorio de Valencia or Gregorius de Valentia; Francisco de Toledo, S.J. (1532-1596); Tomás Sánchez; Francisco Suárez, S.J.; Thomas Cajetan (1469-1534); Benito

appears to be evident from the topics he discusses in book eleven: he accepts astrological practice as long as it is done licitly. He also appears to have practical experience with astrology, as his discussion addresses many of the theoretical and practical issues a practitioner of this period would face due to the restrictions of the Church. Indeed, of all the authors studied who have printed works he is by far the one that is more attentive to the dilemmas of a practicing astrologer. Sempill was a teacher of Mathematics at the Colegio Imperial in Madrid from 1630 to 1640.²⁶² Considering his printed text, and that astrology was one of the subjects include in the Colegio's curriculum, it is likely that he taught it in some form or another.²⁶³ Unfortunately, there are no known notes of his classes.

Riccioli's *Almagest*

Giovanni Battista Riccioli (1598-1671) entered the Jesuit Society in 1614 and began his academic studies in 1616. He studied at the Jesuit college at Parma, where he developed an interest in astronomy; he had as teacher Giuseppe Biancani, having also collaborated with Christoph Scheiner in the observation of sunspots. He was a theologian, an astronomer, and taught at Parma, Mantua and Bologna. He is known for his experiments with falling bodies and pendulums, and for his open opposition to Galileo's ideas. Since he was one of the most revered Jesuit astronomers of his time, it is important to understand his stand on astrology. The *Almagestum novum* of 1651, Riccioli's great work, is the place to search for astrological references; it covers a number of astronomical and mathematical subjects.²⁶⁴ Rutkin has pointed out that his extensive quotations of Manilius's poem, a clearly astrological text, could be interpreted as a pro-astrological position.²⁶⁵ Another, perhaps less obvious, astrological reference can be seen the *Almagestum novum*'s well-known frontispiece. Signed by Francesco Curti (1603-1670), a Bolognese engraver, the drawing presents a complex visual dialogue and stands as an example of the impact of the new celestial ideas in artistic representation.

Pereira; Martín Del Río; Alessandro de Angelis; Manuel Rodríguez (1545-1619); Martín de Azpilcueta (1491–1586), also known as Martinus Navarrus or Doctor Navarrus; Gregory Sayer (1560-1602), also Gregorio Sayro; as well as Domingo de Soto (1494–1560).

²⁶² Udías, 'Los libros y manuscritos de los profesores de matemáticas del Colegio Imperial de Madrid, 1627-1767'; Agustín Udías, 'Profesores de Matemáticas En Los Colegios de La Compañía de España, 1620-1767', *Archivum Historicum Societatis Iesu* LXXIX, no. 157 (2010): 3–27.

²⁶³ Víctor Navarro Brotons, 'Tradition and Scientific Change in Early Modern Spain: The Role of the Jesuits', in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, Mass.; London: MIT Press, 2003), 336–38; see also Tayra Lanuza Navarro, 'Astrología, Ciencia y Sociedad En La España de Los Austrias' (Valencia, Universitat de València, 2005); and 'Astrology in Spanish Early Modern Institutions of Learning'.

²⁶⁴ Giovanni Battista Riccioli, *Almagestum novum* (Bologna: Ex typographia Haeredis Victorii Benatii, 1651).

²⁶⁵ Rutkin, 'Astrology, Natural Philosophy and the History of Science, C. 1250-1700', 415.



Figure 7.3 – Frontispiece of the *Almagestum novum*, 1651

The image is too intricate to discuss fully here, but summarily, it portrays the new discoveries, the fall of the Ptolemaic model, and the advancement of the Tychonian world system as the better alternative to Copernicus. On the right, the goddess of justice, Astraea, dressed as an allegory of astronomy or its muse Urania.²⁶⁶ In her hand a scale weighs the Copernican and the Tychonian world systems, favoring the latter, heavier and depicted in the first plane. At her side Argus, the giant with a hundred eyes, looks at the heavens with a telescope using the eye in this knee, symbolizing humility, as he is kneeling before the work of God. Sited behind the two figures is Ptolemy, stating that he is elevated while corrected ('Erigor dum Corrigor'); his system, now obsolete, rests on the ground. Above the two figures the hand of God and angels holding the planets, depicted as they are seen through the telescope. Abandoning the usual pagan iconography of the planets, this arrangement of the planets appears to follow the rationale of Riccioli's adaptation of the Tychonian world system. On the left are depicted (from top to bottom) Mars, Venus, and Mercury. The three planets are represented next to the Sun, since they all orbit the great luminary, which then revolves around the Earth. On the right are depicted Saturn, Jupiter and the Moon, which circle the Earth directly. But the arrangement also appears to contain an astrological reasoning. The planets on both sides are represented parallel, paired to each other: first, Mars and Saturn, the two malefic planets of the astrological system; below Venus and Jupiter, the two benefic planets, beneath them the Sun and the Moon, the two luminaries, and underneath Mercury. Since it is considered a neutral and variable plane Mercury usually would stand alone, but in the picture is paired with the unexpected and unpredictable phenomena of comets and shooting stars. It can always be argued that these are mere artistical representations, but the choice of the order and their placement is clearly astrological in nature.

Still, a proper view on Riccioli's position towards astrology must be explored within the *Almagestum novum*'s text. He refers specifically to astrology in two places. First in article two of the preface.²⁶⁷ Much like the above authors he gives the reader a historical overview of the problems of astrology and Christian faith, quoting the usual religious authors on this topic, such as Augustine. As is standard, he condemns the errors and superstitious ways of the Chaldeans and Arabs and the abuses of the astrologers (*genethliaci*) in matters of human life. There is a broad discussion regarding the practices of astrology that go against the Christian faith. He addresses the ninth rule of the Council of Trent, as well as the prohibitions of Sixtus's bull regarding the prediction of contingent futures and of acts dependent on human free will, and

²⁶⁶ Due to her gowns this figure is often confused with Urania, but Riccioli identifies her in the text as being Astraea.

²⁶⁷ Riccioli, *Almagestum novum*, VI-VIII (Preface, Article II).

also the constraint of using astrology only in matters of agriculture, navigation and medicine. He always makes the distinction between the bad use of astrology, which is the one being condemned, and the healthy use of astrology which had its defenders. The entire text has a clear religious emphasis, showing Riccioli's views as a theologian. As in previous authors there is a straightforward concern in clarifying the licit uses of astrology, so that any reference to it may not be confused with wrongful superstitious uses. Only in chapter one of book one does he address astrology within the context of astronomy, offering a definition:

Astrology is the art of predicting the natural effects from the positions and revolutions of the heavenly bodies, and therefore is a certain part of practical astronomy. I have said 'natural effects' but not outcomes or future events dependent on free causes, such as those dependent on chance or our fortune; the sure and evident foreknowledge of these only belongs to God, and this science of divination is truly divine; none of these things is within the reach of human skills, as from mere and general inclinations, not always nor most of the time, are produced specific events. For this reason those who boast of or handle this part of judicial astrology, deserve to be reproved by the divine writings and sacred Canons. Nonetheless, as Tacitus [says] acutely, such is humankind, *whatever will always be condemned in Rome, will also always be retained*, or better yet said, in the *World*. Astronomy is far wider, than astrology, taken in a limited sense, if it were not by some who by incompetence use these names without discrimination.²⁶⁸

As many other authors, Riccioli is quite concise in the definition of astrology and much more detailed in referring to its lawfully limitations and to the errors of some of its practitioners. He sets astrology within the realm of practical astronomy as it predicts the effects of the star's positions and motions. But once more he immediately highlights that this prediction concerns only the natural effects and, as expected, dismisses any form of astrology that delves into contingent futures, chance events, or any matter depending on human free will. This part is a just a summary version of what he expanded before in article two of the preface.

In regard to astrological doctrine, like most of his Jesuit colleagues, Riccioli discusses it very succinctly and says nothing whatsoever of its practical application in judgements. In several places in the *Almagestum novum* he addresses fundamental astronomical calculations that would be mainly used for chart calculation and for directions, but for these astrological uses he defers to other authors, such as Magini. However, he does address other subjects whose application is exclusively astrological: the attributes of planets and the qualities of signs,

²⁶⁸ Astrologia est *Ars divinandi effectus naturales ex Astrorum positu, & revolutionibus*, atque adeo pars quaedam est Astronomiae practicae. Dixi effectus naturales, non autem eventus, seu futura contingentia à causis liberis, ut talibus, aut à casu, vel à Fortuna respectu nostri pendentia; horum enim prenotio certa, & evidens, soli DEO naturaliter convenit, & scientia haec divinandi verè Divina est; neque ulla datur de his ars humana, cum ex meris, ac generalibus inclinationibus, nec semper, nec plerunque determinati eventus sequantur. Quapropter qui hanc Astrologiae Iudiciariae partem iactant, aut tractant, meritò divinarum litterarum, & sacrorum Canonum censuram retulerunt. Quamvis, ut acutè Tacitus, genus id hominum sit; *Quod semper in Urbe vetabitur, & semper retinebitur*, dixisset melius *in Orbe*. Longè igitur amplior est Astronomia, quàm Astrologia pressè sumpta, nec nisi ob imperitiam ab aliquibus usurpantur haec nomina sine discrimine. Riccioli, 2 (Book I, Chapter I, Quid sit Astronomia & Cosmographia, & quibus scientiis, aut Artibus indigeat).

planetary dignities, the celestial houses, planetary hours, and the aspects. In chapter fourteen Riccioli gives a succinct description of the signs and their qualities (page 18), he enumerates with a summary definition the domiciles, exaltations, and falls of the planets, presenting a table ‘as is laid out among astrologers’ (‘ut iacet apud astrologos’).²⁶⁹ The celestial houses are referred to several times in the book, with different levels of detail. In chapter twenty-one he gives a short definition of the celestial circles, including the celestial houses as twelve divisions of the heavens into equal parts. Here he refers to several methods, revealing his knowledge of the discussion of house division: The Rational method that he attributes to Abraham Ibn Ezra and Regiomontanus; the Prime vertical, from Campanus and Gazuli;²⁷⁰ the Semidiurnal arcs according to Alcabitius and John of Saxony; and the section of the horary circles, to Ptolemy (page 27). The houses are treated with more detail in Chapter thirty-four, on the celestial houses and the drawing of the celestial figure; again, he mentions the methods of division, and recommends the works of Magini, Stadio, Origano and Argoli for the calculation of the houses in astrological figures. Regarding the astrological meanings of the houses, he only presents a highly abbreviated definition of each house, albeit with a warning: ‘but beware of errors condemned by the pontifical decree, when the discourse is of the prognostication of contingent futures.’²⁷¹ Chapter thirty contains an explanation of the planetary hours (pages 36-37), but no practical use is mentioned. In chapter thirty-three (pages 42-43) Riccioli discusses the planetary aspects in detail, referring to several authors for their definition and number: Ptolemy, Firmicus Maternus, Albumasar, Erasmus Reinhold (Commentary on *Theoricae novae Purbachii*), Francesco Maurolico (*Cosmographia*) and Magini (*Directiones primi mobilis*). Interestingly he discusses the new aspects introduced by Kepler and gives some information on their reception as well as the inclusion of further types of aspects by Fabricius (either David or Johannes Fabricius) and Maestlinus (Michael Maestlin).

Riccioli’s position regarding the practice of astrology is not completely clear. From what is stated in the *Almagestum novum* he approved only of the sanctioned use of astrology to predict the natural effects of the stars, a quite standard and expectable point of view. His extensive dissertations on the errors of the astrologers and the sanctions of the Church could

²⁶⁹ Riccioli, 20. This table is however quite incomplete and strangely presented, as it includes the houses of the planets, but not their exiles or detriments. Perhaps Riccioli was not too concerned with complete accuracy in this topic.

²⁷⁰ Johannes Gasulus or Gjon Gàzulli (1400-1465), an Albanian Dominican friar, astronomer and diplomat. He was professor of mathematics and astronomy at the University of Padua, and known for his creation of a table to calculate the astrological houses using the method of the Prime Vertical attributed in this period to Campanus of Novarra – Robert Elsie, *A Biographical Dictionary of Albanian History* (I.B.Tauris, 2013), 162.

²⁷¹ ... sed cave ab erroribus damnatis à Decretis Pontificiis, ubi sermo est de futuris contingentibus significandis ... Riccioli, *Almagestum novum*, 44 (Book I, Chapter XXXIV).

lead to the idea that he was not in favour of its use; however, in the text he reveals himself to be quite knowledgeable of the subject, and to have read widely on the topic. Not only is he familiar with more advanced astrological techniques, like directions, used for predictions in nativities, but he also knows which authors address the topics, and is also well aware of discussions concerning astrological practices, such as the different house divisions, the use of the new aspects, and particularities of chart calculation and drawing. This evidence, as in the case of Sempill, suggests that Riccioli had at least some practical experience with astrology.

Kaspar Schott: *videte Tyrones!*

Kaspar Schott (1608-1666), also Gaspar Schottus in his published books, was born in Bad Königshofen im Grabfeld in Germany. He received his education in the University of Würzburg, and completed it in the Jesuit seminars of Tournai, Caltagirone and Palermo. In 1652 he became the assistant of Athanasius Kircher at the Collegio Romano until 1655 when he returned to Würzburg, where he remained for the rest of his life. In his later years he published a great number of books of which the best known are his works on hydraulics and mechanical instruments. In 1661 Schott publishes his book *Cursus mathematicus sive absoluta omnium mathematicarum disciplinarum encyclopaedia in libros XXVIII digesta* (Würzburg, 1661), a synthesis of the mathematical sciences which was edited several times.²⁷² Book ten of the *Cursus* is dedicated to astrology (*De Astrologia*), and of all authors he offers the most complete presentations on astrology and its principles. In the introduction he gives a definition of astrology and presents his view on its current practice:

Astrology is the judgement and the prediction from the stars, from their qualities, from their movements, conjunctions, aspects and similar accidents; if it stands within its proper limits, it is honest, useful and approved, and should be enumerated among the mathematical disciplines, namely as a true daughter of Astronomy; it is held in esteem by the learned and good and has been approved more than once by God's reason. Only those who are ignorant of the limits beyond which it is wrong to extend it, deny it. The astrology of which we speak, is not the one which was entirely composed from the dreams and superstitions of the Chaldean, Hebrews, Priscillianists, and other impious and ignorant people, that searches horoscopes, directions and revolutions more eagerly than is right, which chatters of insipid and ridiculous [things]: about marriages, conjugal quarrels, the number of children, servants, beasts of burden, journeys, riches, fortune and misfortune, honours, dignities, and other similar things; that 'constrains the souls and bodies of men to fatal stars' as Saint Leo said in *Epistola* 71, and that Tertullian acknowledges as the 'cult of idols' in the book *De Idolatria*. But about that chaste and clean [astrology], conformed to natural philosophy, that observes and predicts from the motions, conjunctions, advancements, risings and occultations, of the stars, both planets and fixed stars, rain, heat, cold, droughts, winds, and other changes in the weather for

²⁷² Gaspar Schott, *Cursus mathematicus sive absoluta omnium mathematicarum disciplinarum encyclopaedia in libros XXVIII digesta* (Würzburg: Joannis Godefridi, 1661).

agriculture, navigation, medicine, and the whole human life; by the threat of comets and total eclipses, and by the conjunctions of the higher planets, or by the signs of heavens sent by God for the repentance of mortals, it knows why rivers will overflow, seas flood, and unhealthy winters and extreme heats will rage; why [occur] deluges, landslides; why there are pleasant and sad years, abundant and scarce years; why there is sterility and good health of the harvest, illness and frequent death. However, this one that we said, that was once chaste and pure, has also been depraved and corrupted by the fraud of devils and men or mischief, or ignorance, so that by its name alone pious ears are horrified, and the astrologers do not sound anything else than things vane, superstitious, imposturous and pernicious for public affairs. And if I should say the truth, if we talk about that astrology that was once corrupted by the Chaldeans, and Egyptians, Arabs and other infidels, and was propagated to impious Christians; it is entirely vain and impious, and had once been deservedly forbidden by the emperors, and now by the Catholic Church. But if [we talk] about that other, that is now treated by inexperienced [men] cloaked with the name of mathematicians, that entirely consists in the predictions of various things inscribed in calendars; it is all vain and false, and straightforwardly unworthy of the name astrology. Therefore, it might be useful to treat this whole matter at length starting with the principles (which many have already provided) in order to discriminate the truth from the false and the worthless, from the certain knowledge, or completely disregard it. However, so that the beginners can see on which foundations these astrologasters rely, I want to give the information that follows.²⁷³

It follows a first chapter in which he explains the nature and parts of astrology ‘from the reasoning of the astrologers’ (*‘De Astrologiae natura, & partibus, ex mente Astrologorum’*). Following a time-honoured tradition among astrological authors, Schott begins by distinguishing the uneducated astrologers, which he scornfully calls ‘calendar makers’ (*calendariographi*), from those well instructed in mathematics although engaged more than suitably in astrological predictions and speculations:

²⁷³ Astrologiam, hoc est, ex astris, astrorumque, qualitibus, motibus, congressibus, aspectibus, similibusque accidentibus iudicium atque praedictionem, si intra limites suas consistat, honestam esse, utilem, ac probandam, & inter Disciplinas Mathematicas numerandam, utpote genuinam Astronomiae filiam, ab eruditis ac probis in pretio habitam, nec semel DEI etiam calculo probatam, ii solum negant, qui terminos ejus, ultra quos se extendere nefas est ignorant. Est enim Astrologia de qua loquimur, non illa, quae tota ex Chaldaeorum, Hebraeorum, Priscillianistarum, aliorumque impiorum ac ignorantium somniis & superstitionibus coaluit; quae horoscopos, directiones, ac revolutiones, quam par est ardentius inquit; quae garrit insulsa ac ridicula de matrimoniis, de rixis conjugum, de numero liberorum, de servis, de jumentis, itineribus, divitiis, fortunis, infortuniis, dignitatibus, aliisque similibus; quae *fatalibus stellis animas hominum & corpora adstringit*, ut S. Leo Epistola 71 loquitur, & quam idolorum culticem agnoscit Tertullianus lib. de Idolatria: sed casta illa ac munda, naturalique Philosophiae conformis quae ex stellarum, seu errantium seu inerrantium, motibus, conjunctionibus, digressionibus, ortibus, occultationibus, pluvias, calores, frigora, siccitates, ventos, aliasque aëris mutationes ad agriculturam, nauticam, medicinam, totam vitam humanam observat, atque praedicit; quae per crinitarum stellarum, & maximarum eclipsum minas, perque altissimorum planetarum conjunctiones, velut per signa coeli à Deo immissa ad resipiscentiam mortalium, scit unde fluvii tumeant, maria exundent, insanae hyemes, & calores ardentissimi saeviant; unde diluvia, conflagrationesque terrarum; unde anni amoeni & tristes, pingues & macilentii; unde annona sterilitas, sanitas, morbi, ac frequentes mortes. Sed haec ipsa, quam castam ac mundam diximus, fuit olim, & nunc etiam est, fraude diaboli, hominumque vel improbitate, vel inscitia, ita depravata atque corrupta, ut vel ad nomen ejus piaë horreant aures, Astrologusque non alium ferè sonet quam vanum, superstitiosum, impostorem, Reique publicae perniciosum. Et ut verum fatear, si de illa Astrologia sit sermo, quae olim à Chaldaeis, Aegyptiis, Arabibus, aliisque infidelibus corrupta, ad impios Christianos fuit propagata; tota non solum vana, sed impia est, meritòque & olim ab imperatoribus, & nunc ab Ecclesia Catholica proscripta: si verò de altera illa, quae nunc ab imperitis, & Mathematicorum nomine palliatis tractatur, totaque in variarum rerum praedictione Calendariis inscripta consistit; tota inutilis ac mendax est, & Astrologiae nomine prorsus indigna. Praestaret igitur, aut fusè atque ex fundamentis de tota hac materia pertractare, (quod multi iam praestiterunt) ut verum à falso, inane à solido discerneretur; aut illam penitus praeterire. Ut tamen videant Tyrones, quibus nitantur fundamentis Astrologastri illi, paucula quae sequuntur, dare volvi. Schott, 293–94, Prohemium.

The ones I call here astrologers are not those unskilled calendar makers from the mob, but those well instructed in the mathematical sciences, dedicated excessively to astrological predictions. What they perceive of the nature and parts of astrology, is as follows.²⁷⁴

Then he defines astrology as a knowledge (*scientia*) that studies the influences of the stars in the inferior world of the elements:

Astrology, they say, that is called prognosticatory, judicial or divinatory, is the science that accurately investigates by natural principles and by oft-repeated experiences, (1) the forces and effects of the stars, by which through a certain sympathy of theirs with the elements and elemental bodies, changes are set in motion; and (2) how, consequently, temperaments and inclinations in human bodies, changes in the air, and similar things, as the effects of celestial causes, can be predicted and prognosticated.²⁷⁵

Following Magini's ideas, in much the same way as Guldin, Schott divides astrology into two major parts: the first, 'introductoria', that is, theoretical astrology, which deals with the principles of the astrological doctrine; the second, practical or operative ('exercitatoria seu operatoria') that deals with judgements and predictions. This latter he further divides into four parts: the first addressing the status of the World, the second meteorology, the third nativities (using only natural conjectures), and the fourth and last elections proper to agriculture, navigation and medicine.²⁷⁶ Again, as with the aforementioned authors, Schott also sanctions the separation of states of the World and meteorology into two different disciplines, which traditionally were included in the revolutions of the years of the world. The oddness of this division only becomes evident at the end of the description of these two parts where he lists the type of calculation used for both purposes, namely eclipses of the luminaries, ingresses of the

²⁷⁴ Astrologos hîc voco, non imperitos illos de turba Calendariographos, sed qui Mathematicis scientiis bene instructi, praedictionibus Astrologicis plûs aequo sunt addicti. Hi de Astrologiae natura & partibus sentiunt ut sequitur. Schott, 294.

²⁷⁵ Astrologia, inquiunt, quae Prognosticatrix, Judiciaria, seu Divinatrix dicitur, est scientia, quae physicis rationibus, & repetitis saepe experienciis, vires & effectus stellarum, quibus sympathiâ quâdam in elementis, elementatisque corporibus mutationes excitant [read: excitantur], accuratè scrutatur, & quomodo inde temperamenta & inclinationes in corporibus hominum, mutationes aurae, & similia, tanquam effectus coelestium causarum praevideri seu prognosticari possint, docet. Schott, 294.

²⁷⁶ Dividunt Astrologiam in duas partes, Introductoriam, & Exercitatoriam. Introductoria est, quae versatur circa principia judiciorum, quae scilicet sint naturae, vires, & qualitates planetarum, & reliquorum siderum, nec non etiam partium coeli, & quae eorum omnium inter se commixtiones, & habitudines [scrutatur]. Exercitatoria seu Operatoria est, quae ex his principiis futuros rerum eventus indicat, ac praenunciat.

Exercitatoriam subdividunt in quatuor alias partes. Prima est de universi mundi statu, utpote de principiis, mutationibus, & excidiis urbium, imperiorum, & monarchiarum; ubi, & quando pax, bellum, secte, pestilentiae, terre motus, & diluvia contingant, aliaque similia. Secunda est de mutationibus aëris, ut de tempestatibus, de aestuosis, serenis, humidis, frigidis aëris constitutionibus; de his quae inde consequuntur, ut sunt salubritas, pestilentia, annonae copia vel penuria, terrae motus, inundatio &c. Et haec potissimum colligit atque praedicit ex luminarium deliquiis, reversione Solis ad aequinoctialia & Solstitialia puncta, noviluniis, caeterisque planetarum & fixarum stellarum configurationibus, cometis, aliisque quae in sublimi apparent. Tertia est de genituris, & versatur circa privatam cuiuscunque hominis vitam, quoad statum corporis, quoad fortunam, & quoad condiciones reliquas hominis, diciturque Genethliaca; ea siquidem hominum temperamenta, & quae inde sequuntur, qualia sunt inclinationes ad virtutes, ad vitia, ad litterarum studia, deinde mores, morbi, casus, & alia huius generis, quae contingenter homini evenire possunt, naturalibus conjecturis iudicat, nec rarò cum libertatis humanae praeiudicio, & insigni contra Deum & homines injuria. Quarta est de initiis operum, actionum, rerum, aegritudinum; de electionibus temporum singulis rebus convenientium, in commodum Agriculturae, Navigatoriae, ac Medicae. Schott, 294.

Sun in the equinoxes and solstices, other configurations of the planets and fixed stars, and comets. This common use confirms that in practice these two divisions are originally the same branch of astrology. All four parts are deemed by Schott to be those accepted by the sensible astrologers, as then he lists some aspects of the doctrine from the Chaldeans, Arabs and Jewish, and such like, that he considers ridiculous. Among them, and in the same manner as Magini and Guldin, he includes the decans or faces, duodenaries (twelfth-parts), novenaries (ninth-parts), firdaria, the various categories of zodiacal degrees, and the planetary hours.²⁷⁷

It must be noted that in all his discourse he does not speak in his own voice but in that of the astrologers, distancing himself from the subject matter. The principles of astrology follow in chapter two ‘The principles of Judiciary astrology, from the minds of the astrologers’ (*De Astrologiae Iudiciariae principiis, ex Astrologorum mente*). They are presented in two sections: the first on the divisions and qualities of the signs of the zodiac, the second on the nature of the planets, their strengths, qualities and accidents. In them are summarily listed the main attributes of the signs and the planets, as well as the key concepts necessary for astrological judgement (essential dignities, aspects, and the various accidental conditions). All this information is complemented by the third chapter on the twelve celestial houses, their division, names, classifications, and meanings. Schott refers to the various systems of division and gives preference to the method of Regiomontanus, stating that ‘commonly, however, after Regiomontanus, all are satisfied with the method established by him.’²⁷⁸ The following chapter, the fourth, deals with the calculation of the ‘thema’ or celestial figure (i.e. the astrological chart) itself. At the very end of this series of technical instructions, he presents a warning to the reader drawing attention to the fact that there are many more concepts to acknowledge, but for the sake of brevity he will not address them:

Many things remain to be said concerning annual revolutions, directions, changes of the air and weather, and precepts observed in medicine, agriculture and navigation which astrologers deal with abundantly. But I will delay no longer, and the reader will understand the reason from what follows.²⁷⁹

²⁷⁷ Hae sunt Astrologiae partes, juxta sensatiores Auctores. Quibus tamen olim Chaldaei, Arabes, Judaei, aliiq̃ue inculti & impii, & nostris etiam temporibus non pauci aequò divinandi cupidiores, multa inania deliramenta immiscuerunt, ut puta sortes seu omnium rerum partes, decurias, seu signorum facies, & simulacra quae cum his cooriri dicunt, duodenarias, novenarias, firdarias, gradus lucidos, tenebrosos, fumosos, vacuos, masculinos, foemininos, horas planetarias, & alia non minùs ridicula, quàm impia. Schott, 294.

²⁷⁸ Communiter tamen omnibus post Regiomontanum placet modus ab ipso constitutus. Schott, 297.

²⁷⁹ Multa superessent dicendo de revolutionibus annuis, de directionibus, de mutationibus aëris ac temporum, de praeceptis observandis in Medicina; Agricultura, & Nautica, de quibus fusissimè tractant Astrologi; sed piget diutius immorari; causam ex sequentibus intelliget Lector. Schott, 298.

In the fifth and final chapter, ‘What should be thought about judicial astrology’ (*Quid sentiendum de Astrologia judiciaria*) Schott presents a final reflection on the capabilities and limits of astrology. He begins with an introductory paragraph where again he distances himself from the astrologers that, either by ignorance or by arrogance, damage the understanding of astrology:

There are some who either by seeing the ignorance of some astrologers about the nature and effects of the stars, or by seeing their lack of prudence in predicting the future from their study, take away all faith in judiciary or divining astrology, as they call it, and try to destroy it by writing whole books [against it]. There are others who, convinced by the experience of the prediction of some events by the inspection of the stars, and their announcement long before [they happen], embrace, defend and preach the entire [astrology] without differentiation. Both are deceived in the same error, the first is harmless and the other very pernicious. For my part I declare that I disagree with both, for the following [reasons].²⁸⁰

Afterwards, he discusses six topics, giving his own perspective on the matter. In the first he asserts that the heavens and the stars act on the inferior bodies, asserting that ‘this is self-evident, no one contradicts it, as it is evident for all’ (*‘Est per se notum, nec ullus contradicit, cū evidens omnibus sit’*). In the second, he discusses how this action is produced, considering that ‘not only by motion and light [the heaven and stars] act in these inferiors, but also through other virtues, that the philosophers usually call influences’ (*‘Coelum & astra non per solum motum & lumen agunt in haec inferiora, sed per alias etiam virtutes, quas communiter influentias appellant Philosophi’*). The third, fourth and fifth items deal with the matter of the action of the influence of the stars over human beings, presenting a summarized revision of the main religious and philosophical debates. The sixth and final section deals with the common points of criticism towards astrology. Here Schott quickly mentions the fact that the correct time of birth and of other events cannot always be known. Then he enumerates three of the many arguments against astrology made by figures such as Pico della Mirandola and De Angelis: the inconsistency of fundamental astrological principles such as domiciles, exaltations and the other dignities of the planets; that there is not enough time for human beings to have experience of every possible celestial configuration; and finally, the differences in the effects of the celestial configurations due to the increasing difference between the fixed stars and the signs of the Zodiac (i.e. precession of the equinoxes). All of these are common arguments

²⁸⁰ Sunt qui perspectâ Astrologorum quorundam aut ignorantîâ circum natura atque effectus siderum, aut imprudentiâ in futuris ex eorundem inspectione praedicendis, omnem Astrologiae judicariae seu divinatrici, ut appellant, fidem derogent eamque libris integris conscriptis eliminare nitantur. Sunt alii qui eventuum quorundam ex astrorum inspectione praecognitorum, ac diu ante praenunciatorum experientiâ convicti, omnem indifferenter amplectantur, defendant, atque depraedicent. Ultrique pari errore decipiuntur, innoxio tamen primi, perniciosissimo postremi. Ego in quibus ab utrisque discrepem, sequentibus declaro. Schott, 298.

which, apparently, he wants the reader to be familiar with. He finishes with a *Corollarium* stating the uncertainties of astrological prediction:

With these sayings we conclude this chapter, not only the stars do not inflict force upon human freedom, and not the least necessity impose on things, but also that which they say of the inclinations of men is uncertain; what they say of changes of the air, diversity of the year, sterility, and abundance, are fluid and easily changeable.²⁸¹

Lastly, the book is closed with an *Epilogus* with several cautions regarding the ill practice of astrology, particularly in the face of Christian religion:

Since then from the stars we have nothing else beyond light/flimsy conjecture, those men foolishly act and sin, who avidly observe genitures, and by curiosity make inquire about their fate and that of others, and those that have faith in such uncertain things, more foolishly act and even more sin, those who say repeatedly that they can predict with certainty future things dependent on the will of men. Wisely, therefore, both canonical and civil laws persecute this kind of Astrologers.²⁸²

Book ten of the *Cursus Mathematicus* reveals that Schott, like previous authors, is well versed in astrology. Not only is he knowledgeable of the various parts of astrology, but he also addresses its fundamental principles in a very methodical way comparable only to that of Sempill. This practical knowledge of astrology is further evidenced in book IX, on practical astronomy, when discussing the problem of the determination of the exact moment of the Sun's ingress in the signs. Here Schott presents the complete astrological figure for the ingress of the Sun in Aries of 1660 which is superfluous for the discussion but reveals that he was well aware of the uses of the ingresses for prognostication and the calculation of their astrological figures.²⁸³

However, in the text his attitude towards astrology is quite ambiguous. Although he presents a very well-constructed narrative of its definition, principles and limitations, during almost all of the text he distances himself from the subject matter by taking it 'ex mente astrologorum'. He is highly critical of astrologers, most of whom he thinks are uneducated and mere producers of calendars. Undoubtedly, he is referring to the intense production of almanacs in this period, most of which carried a crude, popular version of astrology. Even those astrologers he considers knowledgeable are, in his view, excessively interested in predictions,

²⁸¹ Ex dictis hoc capitulo colligitur, non solum astra nullam vim humanae libertati inferre, nullamque rebus imponere necessitatem, sed ea quoque quae de hominum propensionibus dicuntur, esse incerta; quae de aëris mutatione, & annorum varietate, sterilitate, abundantia praedicuntur, fluida, & facile mutabilia. Schott, 299.

²⁸² Cum igitur ex astris nihil praeter levem conjecturam habere possimus, stultè agunt, & peccant, qui avide genituris inhiant, suã & aliorum curiositate inquirunt fata, & tam incertis rebus fidem habent: stultius agunt, & magis peccant, quise res futuras ab hominum arbitrio pendentes certè posse praedicere dictitant. Sapienter ergo leges tam canonicae, quàm civiles, huiusmodi Astrologos exagitant. Schott, 299.

²⁸³ Schott, 288.

more perhaps than is proper. In the text he clearly endorses the licit practice of astrology, as long as it is within the approved fields of agriculture, medicine and navigation, and respecting the strictures of the Church against the prediction of chance events, or those dependent on human free will. However, both the introduction as well as the final paragraphs transmit the impression that Schott was rather strict regarding the practice of astrological judgements, almost to the point of advising its reader to put it aside. He states in the beginning that he will only address the topic to give some guidance to beginners, admonishes almost all of those who practice it, draws attention to its limitations, and chastises those that make predictions which violate Canon law. It remains unclear if this was his personal view or if he is just being overzealous not to have his work associated with popular astrological predictions or questioned by the Church authorities.

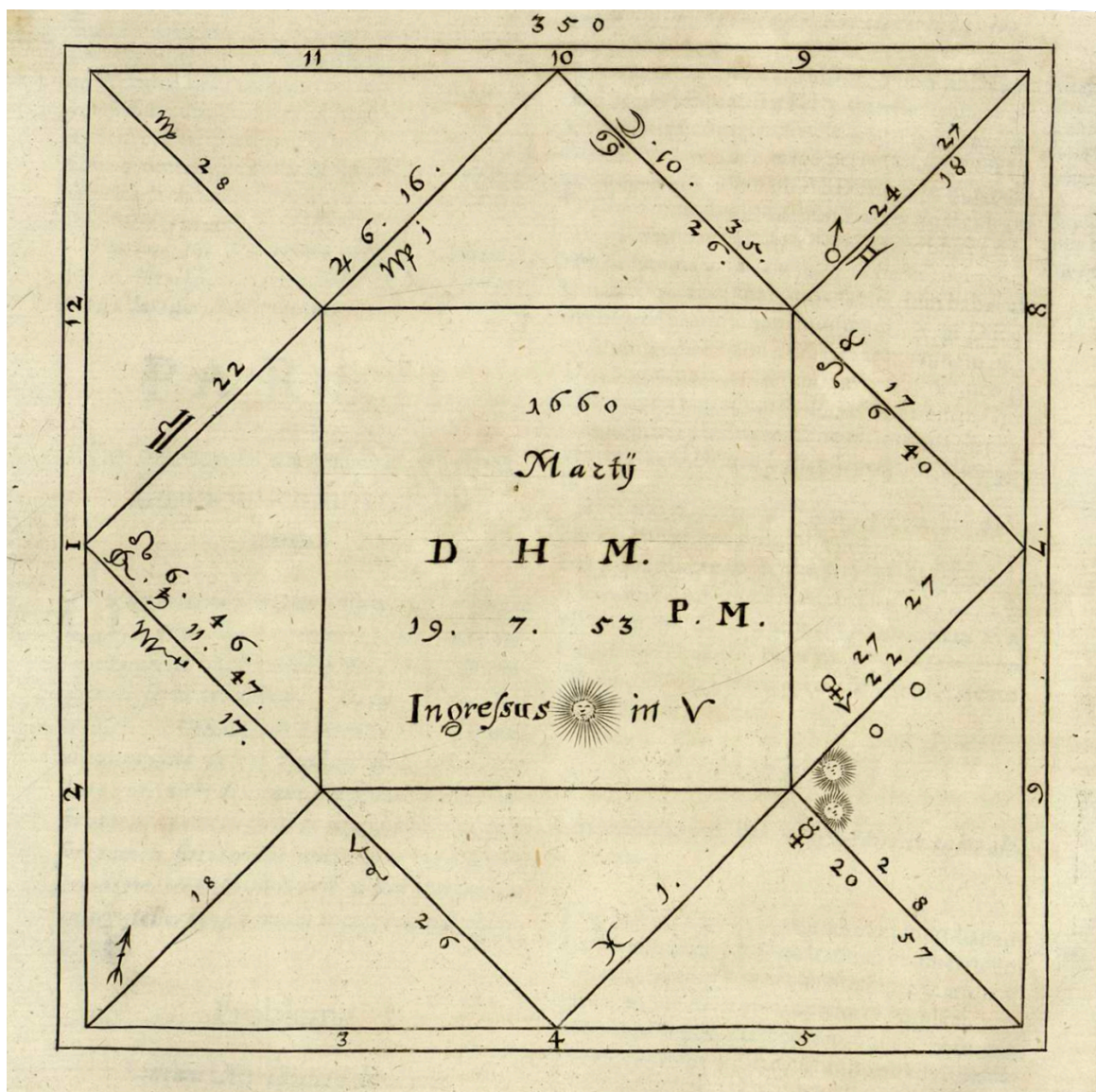


Figure 7.4 – Aries Ingress figure for 1660, *Cursus Mathematicus*, 1661, p. 288.

Kircher's play of symbols

This overview of Jesuit printed authors would not be complete without another significant Jesuit scholar, Athanasius Kircher (1602-1680), to whom Schott was an assistant for a few years. Of German origin, he joined the Society in 1614, and became a teacher. Among many other places, he was a professor at the University of Würzburg and later in his life at the Collegio Romano. Kircher is a complex figure as he was not only a prolific writer, but also explored numerous areas of knowledge, such as Egyptology, optics, magnetism, music, geology, magic, astronomy, mechanics, and much else. Thus, Kircher's approach to astrology is similarly multifaceted, extending to a much larger diversity than those of his colleagues. There are several instances in his texts where he deals with astrology. In most of them his attitude is quite similar to Schott's, though harsher. He is very unforgiving towards bad astrologers, the 'astrologastri', a term he uses in several instances.²⁸⁴ In his writings, like all other authors, he fully condemns the astrological practices he considers superstitious and unlawful for the Church. In his *Iter extaticum celeste* (Würzburg, 1660), which presents the celestial world through the dialogue of the guiding angel Cosmiel and the human Theodidacticus, the references to astrology are common when discussing the planets.²⁸⁵ There is no systematic exposition of astrological doctrine, but the planetary qualities and influences are constantly discussed as part of their natural action on the sublunary world. These attributions are quite traditional and those used in astrological judgements; however, their enumeration is many times followed by dismissive comments towards judicial astrology. For example, in the discussion of the choleric and wrathful attributes of Mars, Theodidacticus's question on whether the angel approves of judicial astrology is answered by referring to astrology as the 'vera impietatis magistra':

[Cosmiel] From the long experience of learned astrologers of all centuries and the consensus of all nations, this globe rightly received the name of Mars from the [type] effects that it caused. *Theodidactus*. You would then approve of judicial astrology? *Cosmiel*. Far from it, my son. judicial astrology is one thing, and the influxive power of which I speak is another. The first, because it violates God and the freedom of human will, is the true mistress of impiety; founded on uncertain and also unstable foundations, it envelops mortal minds in numerous follies and fables; the other teaches the principles of true philosophy, bases on which you can reach the causes of the influences of Mars; as the first one lies about many things, so the other measures several things by unbreakable experience, and is the true guide of celestial physics.²⁸⁶

²⁸⁴ For example, when advising the princes to escape the promises and judgements of the astrologers in Athanasius Kircher, *Principis Christiani archetypon politicum: sive sapientia regnatricis quam regis instructam documentis ex antiquo numismate* (Amsterdam: Joannes Janssonius, 1672), 9.

²⁸⁵ Athanasius Kircher, *Athanasii Kircheri Iter Extaticum Coeleste*, ed. Gaspar Schott (Würzburg: Joh. Andr. & Wolffg. Jun., 1660).

²⁸⁶ Unde ab Astrologis longâ omnium seculorum experientiâ doctis, & universo nationum consensu, iure merito globus hic Martis nomen, ab effectibus quos causat, introductum obtinuit. *Theodidactus*. Ergo nē tu iudiciariam Astrologiam

Despite these constant critical remarks on astrological judgement, the planetary influences are presented as within the bounds of the natural effects of the celestial bodies. Thus, a sort of natural astrology is implicit in the text. Kircher unreservedly recognizes celestial influence, as it is the base for many of his theories and focuses the explanation of the influences and qualities of the planets on intelligences, through which God rules the sublunary world. These intelligences become the reason behind the planets' attributes, as for example with Jupiter:

Fourthly follows the orb of Jupiter, which corresponds beautifully by nature and property to the choir of Dominations. It is therefore a benefic planet, royal and full of majesty; whence, power and empire are promised by the astrologers to whoever is born under it, if we should trust them. However, its intelligence confers it rightful justice.²⁸⁷

Once again, the confidence in astrology is put into question, although astrological doctrine lists these same attributes to the planet Jupiter. This ambiguity is present throughout the text where astrology and the astrologers are both the source of the knowledge of the effects of the planets, and at the same time the vehicle for foolishness, delirium, superstition and sin.

Quite often Kircher addresses astrology within the topics of symbolism, magic and the kabbalah, as in *Oedipus Aegyptiacus*, one of his major works.²⁸⁸ Here, in the section on Egyptian and Chaldean hieroglyphic astrology, he offers the most extensive discourse on astrology of his published works. Still, the introduction of *Oedipus* conveys an extremely negative image of astrology and astrological practice, depicted as a source of foolishness and even of demonic activity. Nonetheless, as the purpose of this book is to present Egyptian astrology, widely recognized as 'superstitious', this rather extreme posture may be a defensive move by Kircher against any critique for dealing with such a subject. In the ensuing chapters it becomes quite evident that he is well versed in the intricacies of astrological doctrine and has a profound knowledge of the classical as well as the Arabic and Jewish authors.

Unlike his aforementioned colleagues he presents many more elements of astrological doctrine because he is dealing directly with the exposition of a superstitious version of astrology. After an overall history of ancient astrology, he discusses several topics such as: the attributes of the zodiacal divisions according to Hermes, presenting associations with such

approbas? *Cosmiel*. Absit, fili mi; est enim aliud astrologia iudiciaria, aliud virtus influxiva de qua ago: illa praeterquam quòd DEO humanaeque voluntatis arbitrio vim inferat, vera impietatis magistra; incertis quoque & arenaceis fundamentis nixa, innumeris nugis fabulisque mentes mortalium involuit; haec autem verae Philosophiae fundamenta docet, quibus nixus Martiarum influentiarum causas attingere possis; & uti illa plurimum mentitur, ita haec plurimum experimentis irrefragabilibus fulta metitur, vera caelestis physicae directrix. Kircher, 251–52.

²⁸⁷ Quartò sequitur globus Jovis, qui naturâ & proprietate pulchrè Dominationum choro congruit: est enim planeta beneficus, Regius, & majestate plenus; unde sub ipso natis dominationem & imperium promittunt Astrologi, se ipsis fides habenda est: Intelligentia verò eiusdem rectam justitiam confert. Kircher, 420.

²⁸⁸ Athanasius Kircher, *Oedipus Aegyptiacus*, vol. 1, 4 vols (Rome: Vitalis Mascardi, 1652).

things as Egyptian gods, colours, stones and genies; the attributes, symbols and associations of the planets; the decans or faces of the signs; the essential dignities; the celestial houses; fixed stars and asterisms; planetary hours; and lunar mansions. There is little on the interpretative doctrine; only a short chapter on the ‘Application and use of predictions in the business of astrology and their refutation’ (‘*Applicatio & usus praedictorum in astrologico negotio, eorumque confutatio*’) where he summarily describes the general method of judgement, and after that considers its claims of prognosticating the happiness or unhappiness of human life as delirious.²⁸⁹ Rather than astrology *proper*, Kircher’s presentation of hieroglyphic astrology is more a complex combination of astrological principles with interpretation of images, mythology, magic, and similar symbolic systems.

Kircher’s position on astrology is, to a certain extent, even more ambiguous than that of any other author. While being very harsh on the ‘follies’ of the astrologers, he addresses its fundamental principles rather neutrally throughout his texts, as he does with other systems.²⁹⁰ Examples of this are his constant mentions of the heights of Chaldean or Egyptian astrology, despite being considered a source for superstitious practices. He does, however, try to filter these problematical practices, by stating them as illusions of the ancients, but still describes most of their doctrine and symbolism. The doubt remains as to how much of Kircher’s bad words towards astrology are the result of the filter of censorship.²⁹¹ His continuous assertion of the importance of celestial influence suggests that he would have been more receptive to the practical potentials of astrology than he states in his published works. Interestingly, in his *Vita* Kircher refers to an episode where he faced the suspicion by some of his colleagues that his prophecy on the impending disaster on Franconia was obtained by means of astrology;²⁹² this comment by his peers is strong evidence that he not only studied astrology, but that he might also have practiced it.

²⁸⁹ Athanasius Kircher, *Oedipus Aegyptiacus*, vol. 2 (Rome: Vitalis Mascardi, 1653), 194.

²⁹⁰ See for example, Daniel Stolzenberg, *Egyptian Oedipus: Athanasius Kircher and the Secrets of Antiquity* (Chicago ; London: The University of Chicago Press, 2013), 196–97.

²⁹¹ Regarding the effects of censorship in Kircher’s works see: Daniel Stolzenberg, ‘Utility, Edification, and Superstition: Jesuit Censorship and Athanasius Kircher’s *Oedipus Aegyptiacus*’, in *The Jesuits II: Cultures, Sciences, and the Arts, 1540-1773*, ed. John W. O’Malley (Toronto ; Buffalo: University of Toronto Press, 2006), 336–54.

²⁹² John Edward Fletcher, Elizabeth Fletcher, and Garry Trompf, eds., *A Study of the Life and Works of Athanasius Kircher, ‘Germanus Incredibilis’* (Leiden: Brill, 2011), 485.

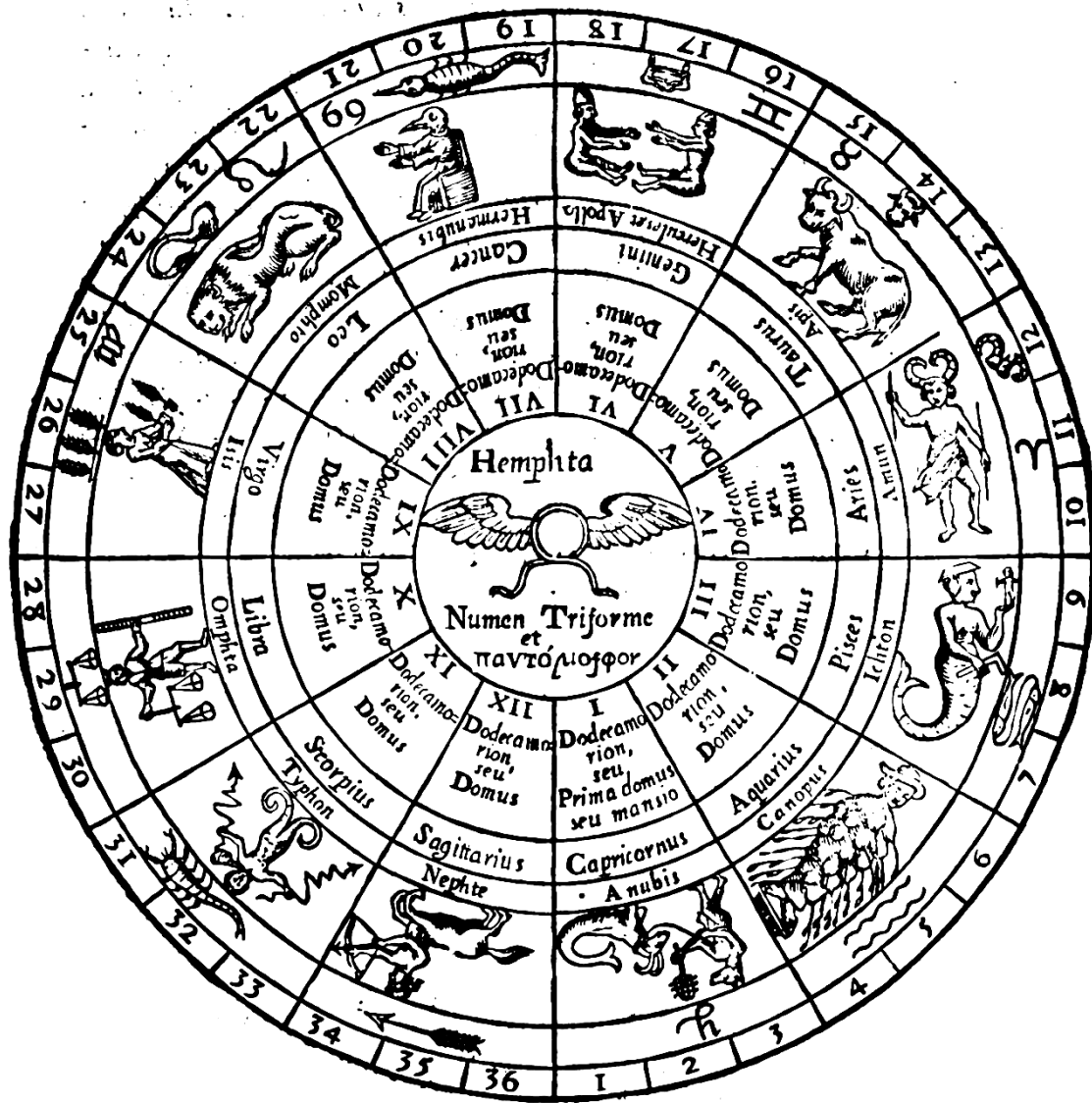


Figure 7.5 – Kircher: Correlation Egyptian deities, with signs, and astrological houses. *Oedipus Aegyptiacus*, vol. 2, p. 160.

Between print and manuscript

Having investigated some the main astronomical printed works of the Jesuits, the manuscripts must know be addressed. The comparison between Clavius's manuscript and his printed texts, revealed significant differences in his dealings with astrology. The manuscripts not only expand the astrological content of his works but also confirm a tolerant posture towards astrological practice which was already implicit in print. These differences in content are most surely due either to the process of revisions by the Society itself, or even due to the author's personal censorship.

Another relevant example of the inclusion of astrology in a Jesuit astronomical manuscript text can be found in *De Astrologia Universa tractatus* by Cristoforo Borri (1583-

1632). Born in Millan, Borri joined the Society in 1601 and taught in Mondovì and Milan. He was a missionary in Asia from 1615 and by 1624 was a teacher of mathematics in Coimbra, Portugal. He is chiefly known for his account of the missionary work, *Relatione della nuova missione delli PP. della Compagnia di Giesù al regno della Cocincina*, published in Rome in 1631. Translated into several languages, this text contains one of the first accounts of the people of Vietnam (Cochinchina) and their astronomical knowledge.²⁹³ In the field of navigation, he is also well regarded for his observations on the magnetic variation of the compass and his works on instruments.²⁹⁴ His manuscript, *De Astrologia Universa tractatus*, written in 1612, is mainly known because it presents the theory of liquid heavens, which caused him problems with his superiors. However, it also contains a significant section on astrology. Unlike Clavius's case, there is no exact equivalent to this text in the printed works of Borri. The closest is the *Collecta astronomica ex doctrina* (Lisbon, 1631), which is a strictly astronomical text with no astrological content. *De Astrologia Universa tractatus* are notes of Borri's 1611-12 classes in Milan. There are two known manuscripts with this text, one in Biblioteca Nazionale Centrale in Rome, a copy made by Albertus de Albertis, a Jesuit professor of mathematics in Milan and a second in the Biblioteca Ambrosiana of Milan.²⁹⁵

The introduction of *De Astrologia Universa tractatus* offers a definition of astrology. The term is used interchangeably with that of astronomy, in the same fashion as in Clavius's works. Borri also divides it into 'astrologia contemplativa', that is theoretical astronomy, and 'astrologia practica' which addresses prognostication. In fact, in most of the introduction he appears to be paraphrasing Clavius's *Commentarius*. He defines 'astrologia practica', also called judiciary or prognosticatory, as the part of astronomy that predicts future events. These prognostications, however, must be within the rightful and lawful bounds set by Sixtus's bull regarding contingent futures and actions depending on free will, and restricted for use in agriculture, navigation and medicine.²⁹⁶ The astrology section entitled 'De astrologia practica'

²⁹³ See Alexei Volkov, 'Traditional Vietnamese Astronomy in Accounts of Jesuit Missionaries', in *The Jesuits, the Padroado and East Asian Science (1552-1773)*, ed. Luís Saraiva and Catherine Jami (Singapore; Hackensack, NJ: World Scientific, 2008), 161–85.

²⁹⁴ On Borri's role in the dissemination and circulation of cosmological models, see Luís Miguel Carolino, 'The Making of a Tychonic Cosmology: Cristoforo Borri and the Development of Tycho Brahe's Astronomical System', *Journal for the History of Astronomy* 39, no. 3 (2008): 313–44.

²⁹⁵ *De astrologia universa tractatus. Dividitur in duas partes quarum prima de contemplatrici astronomia, secunda de practica breviter, sed dilucide ita pertractat ut deesse plane aut desiderari posse nihil videatur*, Roma, Biblioteca Nazionale Centrale di Roma, Ms. Fondo Gesuitico 587 and *Tractatus astrologiae*, Milan, Biblioteca Ambrosiana, Ms. A. 83 Sussidio. The first manuscript is mentioned by Ugo Baldini, *Legem impone subactis: studi su filosofia e scienza dei gesuiti in Italia, 1540-1632* (Roma, Italia: Buzzoni, 1992), 169; and the second by Ottavio Besomi and Michele Camerota, *Galileo e il Parnaso Tychonico. Un capitolo inedito del dibattito sulle comete tra finzione letteraria e trattazione scientifica* (Firenze: Olschki, 2000), 119.

²⁹⁶ BNCR Ms. Ges. 587, fols. 3r-4r.

is small (ten folia in the Rome manuscript and thirty in the one from Milan). From the opening text it appears that Borri intended it to have four parts or treatises: the first on astrometeorology ('De tempus mutatione'), the second on astrological medicine ('De astrologia ad medicina usum'), the third on agricultural applications of astrology, and the fourth on its use in navigation.²⁹⁷ However, only the first two are presented in the text. The introduction deals briefly with the aspects and the celestial houses. Then follows the first treatise where Borri summarily discusses several of the principles of astrometeorology: the effects of the Moon and lunations, the qualities of the planets and of the fixed stars on weather, and the calculation and interpretation of eclipses. The second treatise addresses the uses of astrology in medicine, discussing the basic principles for the use of the nativity (birth horoscope) in medicine, and then discussing the effects of the Moon in the various signs and its combination with planets; here he quotes the writings of Magini and Hermes. In this text Borri does not present the fundamental astrological principles, but he does give instructions on astrological interpretation which are for the most part lacking in the printed works. It is far from a complete manual on astrology, as it is probably an unfinished work, but in it there is a clear intention of teaching the practical application of astrology.

There are references to other Jesuit manuscripts addressing astrology. Among these, the astrological manuscripts of Santo Antão, Lisbon, which will be address in full in Part Three, are a paramount example. However, there are others such as those of Antoine Jordin (1562-1636), which dedicates a chapter of the mathematical section of his manuscript, *De mathematicis disciplinis tractatio*, to Judiciary astrology.²⁹⁸ This type of document is extremely important, and it is likely that further research into the many documental archives of the Society might reveal even more. As a counterpoint to the printed works, they become crucial for the elaboration of a complete picture of the role of astrology in Jesuit teaching.

Astrology among the Jesuits scholars

From the mathematical dismissal of Biacani, to the tainted astrology of Scheiner, the defence of nativities by Sempill, the study of these authors and their printed works offers a view of the official and public stance of the Jesuits towards astrology. Here it is presented, not in the writings of its opposers, but in the words of those who have either studied it or dealt with it in

²⁹⁷ BNCR Ms. Ges. 587, fol. 28.

²⁹⁸ Romano, *La Contre-Réforme Mathématique. Constitution et diffusion d'une culture mathématique jésuite à la Renaissance (1540-1640)*, 244-285 (particularly 248 and 270-271).

their work, and perhaps even practiced it as is implicitly suggested in some of the texts. Following somewhat the same posture as Clavius's, the public attitude of the Jesuit astronomers and mathematicians towards astrology is very similar. There was among the Jesuit students of mathematics a clear knowledge of astrology, its principles and its practical applications. It is also likely that this knowledge extends beyond simple theory. Some must have practiced it even if only as a part of their studies. However, it remains difficult to clarify the extension of this practice within the society members, and also how much of it was truly restrained by the rules of the Church and of the Society. They all seemed to be quite aware that the predictive potential of astrology extended to the areas which are restricted by the papal bulls. Indeed, this practice was present in most of the authors from which they learned and often quoted, particularly in those predating the mid-sixteenth century. Thus, there arises the question of whether their concern is only a façade to occlude the extent of their practice, or if they are absolutely strict, restricting it only to the permitted areas. A reading of the texts of the above authors suggests in most of them a position of compromise in which the bounds of the Church are respected, but within these bounds they extend as much as they can the capabilities of astrological prognostication. This is more evident in Sempill, in particular in what concerns nativities. A similar posture appears to be present at least in Schott and Kircher, and perhaps even in Riccioli and Clavius himself. Further research and more evidence, such as private papers, would be needed to provide a clearer view. Notwithstanding, they all maintain a respectful and, in some instances, even a fearful attitude towards the consequences of astrology's ill practice and are against the 'forbidden' and 'superstitious' parts such as predictions of future events dependent on free will. Thus, an extra effort is made to place any teaching or discussion of astrology within the lawful practices allowed by the Church and those proper to a good Christian. This is often done at the cost of the explanation of the astrological system itself. When this explanation is present, it is in a substantially abridged form, amounting mostly to a description of the basic principles, and an account of its main applications. It is also noticeable that some aspects of astrological doctrine are still under discussion and differ according to each author. An example is the doctrine of planetary hours; both Guldin, Riccioli and Schott consider it to be without any natural base, but Sempill mentions its use when interpreting nativities. The new celestial discoveries, as noted before, had a very faint bearing on astrological practice and the Jesuits appear to be no exception. Arguments such as Scheiner's had no effect on his colleagues' presentation of astrological doctrine.

The foremost conclusion, taken from the examination of all these books, is that none of the printed Jesuit texts offers a comprehensive presentation of the astrological system. Sempill does present very brief examples and references to other fundamental works, and Schott's exposition of the doctrine, though highly summarized, is quite thorough, but their texts alone cannot be used as study manuals. They all lack the interpretative parts of the doctrine which teach how to make judgements; this is usually left to other authors such as Magini. If there was a more complete treatment of astrology by Jesuits, it must be looked for elsewhere. Considering the cases of Clavius' and Borri's manuscripts, it can be inferred that a study of Jesuit manuscript works offer a different perspective on the treatment of the subject, and that more evident teachings of astrology might exist, albeit in manuscript form. Of all the works above analysed only Borri's presents a more advanced use of astrology. Indeed, as far as Jesuit authors are concerned, astrology primers exist only in manuscript versions. Such is the case of the Santo Antão manuscripts, containing astrological classes. Part three will explore this important testimony of this manuscript tradition.



Chapter 8. Astrology as a cultural currency: Jesuits in the East

Before proceeding to study the manuscript evidence, this overview of the Jesuit stance on astrology would not be complete without addressing, even if briefly, its placement in their global teaching network. Due to their extensive missionary work the Jesuits established the largest cultural exchange and global education enterprise of the early modern period. The scientific exchanges they promoted in India, China and Japan were paramount in the spread of European scientific knowledge. Among that knowledge was astrology, which was not only imbedded in European culture, but was also an important tradition in Indian culture and it presented similarities with other interpretative and divinatory practices in China and Japan. It is reasonable to assume that astrology was an important commodity in this interchange. Furthermore, the astronomical technology of the west, which captivated the interest of the eastern cultures, would have as one of its main applications, astrological calculation. However, astrology's part in this process is still to be properly explored by historiography. Here will be offered a wide view of the matter constrained only by the inability to study the source materials and the academic production in their original languages.

China: new astrology for an old empire

China offers the most relevant example of the use of astrology by Jesuits in their intercultural exchange and missionary work. The history of the Jesuit mission to China and its contribution to the development of early modern science has been studied extensively, and there exist a sizeable volume of academic production on the subject.²⁹⁹ Thus, the contribution of astrology in this context is fairly documented and has been the subject of various studies.³⁰⁰ As such, the

²⁹⁹ The amount of works is too vast to quote in full. Some examples are: John O'Malley et al., eds., *The Jesuits: Cultures, Sciences, and the Arts, 1540-1775*, vol. 32 (Toronto: University of Toronto Press, 1999); Catherine Jami, Peter M. Engelfriet, and Gregory Blue, eds., *Statecraft and Intellectual Renewal in Late Ming China: The Cross-Cultural Synthesis of Xu Guangqi (1562-1633)*, Sinica Leidensia, v. 50 (Leiden; Boston: Brill, 2001); Luís Saraiva, ed., *History of Mathematical Sciences: Portugal and East Asia II: University of Macau, China, 10-12 October 1998* (Hackensack, N.J.: World Scientific, 2004); Benjamin A. Elman, *On Their Own Terms: Science in China, 1550-1900* (Cambridge, MA and London, England: Harvard University Press, 2005); Luís Saraiva and Catherine Jami, eds., *The Jesuits, the Padroado and East Asian Science (1552-1773)* (Singapore; Hackensack, NJ: World Scientific, 2008); Catherine Jami, *The Emperor's New Mathematics: Western Learning and Imperial Authority during the Kangxi Reign (1662-1722)* (Oxford; New York: Oxford University Press, 2012); Richard J. Smith, *Mapping China and Managing the World: Culture, Cartography and Cosmology in Late Imperial Times*, 1st ed. (Routledge, 2013).

³⁰⁰ Some of the more relevant works are: Tiziana Lippiello, 'Astronomy and Astrology: Johann Adam Schall von Bell', in *Western Learning and Christianity in China: The Contribution and Impact of Johann Adam Schall von Bell, S.J. (1592-1666)*, ed. Roman Malek, vol. 1, 2 vols (Sankt Augustin: China-Zentrum: Monumenta Serica Institute, 1998), 402-30; Nicolas Standaert, 'European Astrology in Early Qing China: Xue Fengzuo's and Smogulecki's Translation of Cardano's Commentaries on Ptolemy's', *Sino-Western Cultural Relations Journal* XXIII (2001): 50-79; Antonella Romano, 'Observer, vénérer, servir. Une polémique jésuite autour du Tribunal des mathématiques de Pékin', *Annales. Histoire, Sciences Sociales* 59, no. 04 (2004): 729-56; Han Qi, 'From Adam Schall Von Bell to Jan Mikołaj Smogulecki: The Introduction of European Astrology in Late Ming and Early Qing China', *Monumenta Serica* 59, no. 1 (2011): 485-90;

case of China will be used to exemplify the role of astrology in the Jesuit missions by focusing on the writings of four of its main contributors in the field of astronomy: Matteo Ricci, Johann Adam Schall von Bell, Ferdinand Verbiest, and Jan Mikołaj Smogulecki.

The Jesuit mission in China, its various stages and its role on the dissemination of western scientific knowledge in the Far East is well known to historians of science. Francis Xavier (1506-1552) had aimed to enter in China in 1552, but he was unsuccessful and died before reaching the main continent. The effective mission only began in 1582 with the efforts of the Italian Matteo Ricci (1552–1610) who was able to establish a permanent Jesuit presence in China by using the policy of accommodation. One of Ricci's most valued commodities was western astronomical knowledge, and he used it by offering his services as an astronomer to the emperor, which included the correct prediction of celestial phenomena such as eclipses, and the calculation of the calendar. These in turn served also a predictive role, as the interpretation of omens, the selection of auspicious and inauspicious days, and other forms of divination were a standard practice.

The Jesuit missionaries were from the beginning very critical of the Chinese traditions of celestial omens, as they were of any astrological practice that would fall into the field of divination and superstition. Several of the Chinese customs could be easily fitted into these categories, and thus contrary to the Christian faith. These views, particularly on astrology, are expressed by the Jesuit Nicolas Trigault (1577–1628) who composed *De Christiana expeditione apud Sinas suscepta ab Societate Jesu* (Lyon, 1615) from Ricci's papers:

But these astrologers do not care much to reduce to the rule of reason the celestial constellations. They are for the most part occupied in the prediction of the moment of the eclipses and the magnitude of the planets and the stars; but all this is filled with a thousand errors. Finally, they relate almost all their science of the knowledge of celestial bodies to what we call judiciary; believing that all that is done in this inferior world depends on the stars. They have, however, learned something in these mathematical disciplines from the Saracens who came from the West. But these confirm nothing by the authority of demonstrations, only handed a few tables, to the rule of which they restrict their calendars, the eclipses, and the movements of all planets.³⁰¹

Haohao Zhu, 'Integrating Human with Heaven by Numbers: A Research on Xue Fengzuo's Astrology. 以数合天——薛凤祚星占工作研究' (PhD Thesis, University of Science and Technology of China, 2015).

³⁰¹ Verum hi Astrologi nihil admodum de coelestibus phaenomenis ad rationis calculos reuocandis adlaborant. Magnam partem in praedicendis Eclipsium momentis, & Planetarum ac stellarum motibus occupantur. Sed haec etiam omnia mille scatent erroribus. Denique omnem ferè suam de sideribus cognoscendis scientiam, in eam, quæ à nostris Iudiciaria est appellata, referunt, arbitrati, quaecunque in hoc elementari orbe fiunt, ab sideribus dependere. In his tamen Mathematicis disciplinis, aliquid ab Saracenis, qui ab Occasu venerant, accepêre, sed nihil illi demonstrationum auctoritate confirmant, sed solùm tabulas quasdam reliquerunt, ad quarum normam fastos suos, Eclipses utriusque planetæ, & omnium motus revocantur. Nicolas Trigault, *De Christiana Expeditione apud Sinas Suscepta Ab Societate Jesu. Ex P. Matthaei Riccii Eiusdem Societatis Commentariis Libri V: Ad S.D.N. Paulum V. In Quibus Sinensis Regni Mores, Leges, Atque Instituta, & Novae Illius Ecclesiae Difficillima Primordia Accurate & Summa Fide Describuntur* (Augsburg: Christoph Mangio, 1615), 30.

Here there is an implicit critique not only of astrological and divinatory practices, but also of Chinese astronomical knowledge. The Catholic strictures that in Europe set limitations on astrology regarding the prediction of contingent events and divination, had no place in China. Thus, Ricci and the other Jesuit missionaries had to deal with an entirely different religious and philosophical attitude towards astrology and divination; from early on they realized that to change the Chinese traditions would not be an easy enterprise.³⁰²

As it becomes clear in the words of Trigault, astrology already had a long history in China. Besides their own form of natural philosophy and use of celestial omens, the Chinese had also contact with Indian and Arabic astrology which was much closer to the European practice.³⁰³ To accomplish the task of observing, calculating, and predicting celestial phenomena, as well as calendar making the Chinese government had a special institution, a Bureau of Astronomy also known as the Tribunal of Mathematics.³⁰⁴ It was in within this institution, through their astronomical and mathematical knowledge, that the Jesuits found an entry into the Chinese court and traditions.

Schall's *practical astrology*

Despite the Jesuits' expected stands against divination, astrology was still a part of their culture. Any Jesuit with a fundamental knowledge of mathematics and astronomy would have learned at some point some basic precepts of natural astrology. Thus, it was present in one way or another in their exchange of western scientific knowledge with the Eastern civilizations. This appears first in the case of Johann Adam Schall von Bell (1591-1666). Of German origin, he joined the Jesuits in 1611, finished his education at the Collegio Romano, and sailed from Portugal to China in 1618 with Nicolas Trigault. After several years in China, in 1644, Schall gained the favour with the new Qing emperor, becoming head of the Tribunal of Mathematics. The Jesuits had earned the recognition of the Chinese rulers by being able to predict celestial

³⁰² See: Huang Yi-Long, 'L'attitude des missionnaires jésuites face à l'astrologie et à la divination chinoises', in *L'Europe en Chine: interactions scientifiques, religieuses et culturelles aux XVIIe et XVIIIe siècles: actes du colloque de la Fondation Hugot (14-17 octobre 1991)*, ed. Hubert Delahaye and Catherine Jami, Mémoires de l'Institut des hautes études chinoises, v. 34 (Paris: Collège de France, Institut des hautes études chinoises, 1993), 87–108; and 'Court Divination and Christianity in the K'ang-Hsi Era', *Chinese Science* 10 (1991): 1–20.

³⁰³ On this topic see, for example, Jeffrey Kotyk, 'The Sinicization of Indo-Iranian Astrology in Medieval China', *Sino-Platonic Papers*, no. 282 (2018): 1–95; Bill M Mak, 'Greco-Babylonian Astral Science in Asia: Patterns of Dissemination and Transformation', in *East-West Encounter in the Science of Heaven and Earth 天と地の科学—東と西の出会い*, ed. Tokimasa Takeda and Bill M. Mak (Kyoto: Institute for Research in Humanities, Kyoto University, 2019), 14–34.

³⁰⁴ For a comprehensive study of the Chinese calendar see Jean-Claude Martzloff, *Astronomy and Calendars – The Other Chinese Mathematics* (Berlin, Heidelberg: Springer Berlin Heidelberg, 2016); for an overview of the Tribunal of Mathematics and the Jesuits see Romano, 'Observer, vénérer, servir. Une polémique jésuite autour du Tribunal des mathématiques de Pékin'.

phenomena with great precision. Thus, their astronomical technology was welcomed at the Imperial Court. In such a position Schall was able to introduce reforms to the calendar and new astronomical methods that were far more accurate than those previously used. However, Schall was also, even if indirectly, in charge of all the prognostication work that was one of the main functions of the institution. This was a role he apparently accepted at least to maintain a position close to the court. Examples of this, are the prognostication of a lunar eclipse in 1647 and of a parhelion or ‘sun-earring’ in 1657, both presented to the emperor.³⁰⁵ Here he based his interpretations by using a seventh-century Chinese traditional text, the *Guanxiang waltzhan*, from which he simply quotes the corresponding interpretation.³⁰⁶ His attitude towards Chinese divination seems to have been ambiguous. On the one hand he condemned, like any Jesuit, the superstitious practices of the Chinese, but on the other he made use of them and even legitimized some of these calendrical practices in his *Minli puzhu jiehuo* (‘Commentary to the popular calendar’), arguing that they derived from the experience of the ancient Chinese and should not be entirely dismissed as superstition.³⁰⁷ This was also an argument often used to legitimise certain components of European astrology (as seen in Part I). This attitude is also present in the introduction to his work, *Jiaoshi lizhi* (‘Aperçus on the Eclipses’, 1632-34), where he counsels the use of caution and intelligence when interpreting heavenly phenomena and their possible effects.³⁰⁸

Not all members of the Society were as accepting of the Chinese practices and of Schall’s engagement with them, and he was accused by his fellow Jesuits of practicing or indorsing divination forbidden by Catholic law. In 1645 his colleague Gabriel de Magalhães (1609-1677) accused Schall of superstitious practices in his function at the Tribunal of Mathematics. This internal polemic, called the ‘Schall affair’ by Romano, or the ‘almanac dispute’ by Yi-Long, dragged on for some years.³⁰⁹ It put into question how far the accommodation led the Jesuits to support, even if indirectly, superstition and idolatry. Schall defended himself stating that he was not in charge of the calendar predictions made by Chinese officers and that many aspects of the

³⁰⁵ For a discussion and translation of Schall’s prognostications, see Lippiello, ‘Astronomy and Astrology: Johann Adam Schall von Bell’.

³⁰⁶ Lippiello, 407.

³⁰⁷ Lippiello, 419.

³⁰⁸ Lippiello, 425–28.

³⁰⁹ Romano, ‘Observer, vénérer, servir. Une polémique jésuite autour du Tribunal des mathématiques de Pékin’, 737; Yi-Long, ‘L’attitude des missionnaires jésuites face à l’astrologie et à la divination chinoises’, 94–97.

Chinese calendar were similar to the European almanacs that the Church did not forbid. In 1664 the Pope accepted his explanations, and he was able to keep his position at the Tribunal.³¹⁰

Yet, the most important evidence of the transmission of western astrology to China comes from an astrological manual translated by Schall sometime around 1644.³¹¹ This treatise was made to attend the emperor's wish to know the astrological interpretation of the configurations of the stars and planets. In a memorial to the emperor in 1644, Schall's states that this book was used as a textbook in Western schools and as soon as it was ready it would be used to replace the traditional Chinese divination at the Tribunal of Mathematics with a new astrological method.³¹² Thus, he proposed a full translation of the western astrological manual to the emperor:

Firstly, if one observes the movements of the Sun and of the Moon and the five planets without understanding in which manner they correlate with human affairs, there will be no way to prepare the relief to face the droughts and the floods, and if these come, the soldiers, the peasants, the doctors, the merchants will be scattered. In my country of the west there is a book entitled *Practice of astrology*, whose first book has already been translated, at the price of working without rest. If His Majesty ordered that we finish [the translation], we could then use the new method in all the commentaries, and this for the benefit of the peoples of many countries...³¹³

This effort to introduce western astrology in the Tribunal appears to have been in vain as he later comments that 'the Western method is entirely occupied with calculations; the divinatory commentaries made by the bureau, follow, as in the past, the Chinese method. These are not applications of the Western method.'³¹⁴ However, the first section of the translation, the *Tianxue shiyong* 天學實用 ('Practice of Astrology'), was completed and it appears to have been

³¹⁰ For a detailed account of this polemic, see Romano, 'Observer, vénérer, servir. Une polémique jésuite autour du Tribunal des mathématiques de Pékin'. See also Claudia von Collani, 'Astronomy versus Astrology. Johann Adam Schall von Bell and His "Superstitious" Chinese Calendar', *Archivum Historicum Societatis Iesu*. LXXXII (2013): 421–58; 'Two Astronomers: Martino Martini and Johann Adam Schall von Bell', in *Martino Martini: Man of Dialogue: Proceedings of the International Conference 'Martino Martini (1614-1661), Man of Dialogue' Held in Trento on October, 15-17, 2014 for the 400th Anniversary of Martini's Birth*, ed. Luisa Maria Paternicò, Claudia von Collani, and Riccardo Scartezzini (Trento: Università degli Studi di Trento, 2016).

³¹¹ Qi, 'From Adam Schall Von Bell to Jan Mikołaj Smogulecki', 486.

³¹² Qi, 487.

³¹³ Premièrement, si l'on observe les mouvements du Soleil, de la Lune et des Cinq Planètes sans comprendre de quelle manière ils sont corrélés aux affaires humaines, il n'y aura pas moyen de préparer les secours pour affronter les sécheresses et les inondations, et si celles-ci adviennent, les soldats, les paysans, les médecins, les marchands seront dispersés. Dans mon pays d'Occident, il y a un ouvrage intitulé *Pratique de l'astrologie*, dont le premier livre a déjà été traduit, au prix d'un travail sans repos. Si Sa Majesté ordonnait que l'on terminât [la traduction], on pourrait dès lors utiliser la nouvelle méthode dans tous les commentaries, et cela pour le plus grand bénéfice des peuples de nombreux pays... – Quote from the memories (*Zoushu*) written by Shall in 1658 and included in a copy of the *Xiyang xin fa lishu* of the Museum of the Imperial Palace of Taipei in Yi-Long, 'L'attitude des missionnaires jésuites face à l'astrologie et à la divination chinoises', 93. (My translations unless stated otherwise.) Another version of this text is presented in Qi, 'From Adam Schall Von Bell to Jan Mikołaj Smogulecki', 487.

³¹⁴ La méthode occidentale est entièrement occupée de calculs; les commentaries divinatoires faits par le Bureau suivent comme par le passé la méthode chinoise. Ce ne sont pas des applications de la méthode occidentale. – Yi-Long, 'L'attitude des missionnaires jésuites face à l'astrologie et à la divination chinoises', 93 footnote 34.

well accepted by Chinese scholars, since there exist testimonies of its use until the late decades of the seventeenth century.³¹⁵ The *Tianxue shiyong* only presents the foundations of western astrology: the nature of the planets, the nature of the fixed stars, accidental conditions of the planets, essential dignities, the nature of the zodiacal signs, the twelve houses, configurations and aspects of the planets (see table below).³¹⁶ This is consistent with Schall's statement that only the first part was completed since the contents correspond to the initial theoretical principles of astrology that comprise the first part of any astrological manual.

Table 8.1 – Contents of *Tianxue shiyong* 天學實用 (*Practice of Astrology*)

天文實用卷一目錄	Practice of Astrology, fascicle 1, Table of Contents
1. 一七政依原情之力	1. Powers of the seven planets depending on primary qualities
2. 七政性情	2. Natures of the seven planets
3. 七政類及勢情	3. Natures of the seven planets related to power and condition
4. 一七政依恒星之力	4. Powers of the seven planets depending on the fixed stars
5. 恒星總像力	5. Powers of the constellations of fixed stars
6. 恒星各本力	6. All basic powers of the fixed stars
7. 恒星較黃赤道等力	7. Other powers of the fixed stars relative to the ecliptic and equator
8. 一七政依本圓之力	8. Powers of the seven planets depending on the celestial orbs
9. 距地還近等七政之效原	9. Sources of the effects of the planets at far and near distance from earth
10. 一七政依公圓之力	10. Powers of the seven planets according to the greater circles
11. 黃道諸宮性情	11. The natures of zodiacal signs of the ecliptic
12. 黃道諸宮異同各類	12. The various similarities and differences between zodiacal signs of the ecliptic
13. 十二舍各性情	13. Each nature of the twelve houses
14. 七政本性之位 猶言地位	14. Natural powers of the places of the seven planets [essential dignities]
15. 一六曜依太陽之力	15. Powers of the six planets with respect to the Sun
16. 六曜距太陽還近力	16. Powers of the six planets according to their distance from the Sun
17. 六曜距太陽左右等力	17. Powers of the six planets being oriental or occidental to the Sun
18. 一七政依本合之力	18. Powers of the six planets depending on the basic conjunction
19. 七政相照之情	19. The nature of the seven planets in their mutual illuminations [aspect]
20. 七政相照之次類	20. Secondary categories of the seven planets in their mutual aspects

The source for the material contained in the *Tianxue shiyong* has been attributed to Ptolemy's *Tetrabiblos*, with some modifications, and to Alcabitius's *Introduction*.³¹⁷ However, in this period, this can be said of almost all introductions to astrology. Ptolemy is not only one of the main sources for western astrological doctrine, but also with the Ptolemaic revival in astrology of the late fifteenth and sixteenth century, the *Tetrabiblos* became a model for many early

³¹⁵ Qi, 'From Adam Schall Von Bell to Jan Mikołaj Smogulecki', 488.

³¹⁶ I greatly thank Alexandra Fialkovskaya for the translation of the chapter titles, and the invaluable assistance of Jeffrey Kotyk for revising the chapter headings and for an overview of the content of each chapter. Without their help this brief analysis would have been impossible.

³¹⁷ Qi, 'From Adam Schall Von Bell to Jan Mikołaj Smogulecki', 487; and 'The Introduction of European Astrology and Its Influence in Late Ming and Early Qing China - A Case Study of Adam Schall von Bell and His Tianwen Shiyong (明末清初欧洲占星术著作的流传及其影响——以汤若望的《天文实用》为中心)', *The Chinese Journal for the History of Science and Technology* 34, no. 4 (2013): 436–37.

modern astrological texts. Almost all authors of the sixteenth and seventeenth centuries present the astrological doctrine following Ptolemy as closely as possible. There are of course several variations and very few books match the exact chapter order in *Tetrabiblos*. The similarities are usually within the chapters regarding content and the order in which it is presented. The most noticeable variation is the inevitable chapter on the twelve houses, which Ptolemy, contrarily to almost all astrology books, does not include. Therefore, it is not a surprise that the contents of the *Tianxue shiyong* follow this Ptolemaic-type order of exposition. However, it is far from a simple translation of Ptolemy's text. The challenge to pinpoint a more precise source comes from the fact that the contents of the *Tianxue shiyong* are just the fundamental concepts and these are usually explained in much the same way in most astrological books. Furthermore, it has been usually assumed that this and other texts are necessarily literal translations, but they can also be an original text created from the knowledge that any astronomer would have of the subject with, of course, a good number of references and notes taken from other authors.

That being said, and considering that further research is needed, the manner by which the chapters are ordered in the *Tianxue shiyong*, as well as their content, is very similar to the above-mentioned *Isagoge in Iudiciariam Astrologiam* by Antonio Giovanni Magini.³¹⁸ Not only he is an author frequently praised by Jesuit authors, but also one that had a close connection to the Collegio Romano. As will be shown in Part Three, this author is commonly cited by Jesuit authors. Such is the case of the lessons of Santo Antônio, who also follow a similar selection of subjects in their introductory sections, as well as the printed mathematical compendiums by Hugh Sempill and Kaspar Schott. Additionally, seventeenth-century astrology texts tend to cite recent astrological works rather than earlier medieval sources such as Alcabitus (despite the doctrine being mostly the same). The other planned volumes could have provided further clues regarding the source materials used, which likely would have come from diverse sources. These probably would be on meteorology, nativities (related to medicine), and perhaps elections, such as in the manuals of Santo Antônio and in the books by Sempill and Schott. It is also worthy of note for future research that the *Tianxue shiyong* has been adapted to include a few comparative references to some of the Chinese astronomical and astrological concepts, for example in the chapters on the constellations. Independently of the sources used by Schall for this enterprise, the book is quite revealing of his knowledge of astrology and of his strategy to introduce it into China.

³¹⁸ Magini, *Ephemerides Coelestium Motuum*, fols 33r–48v.

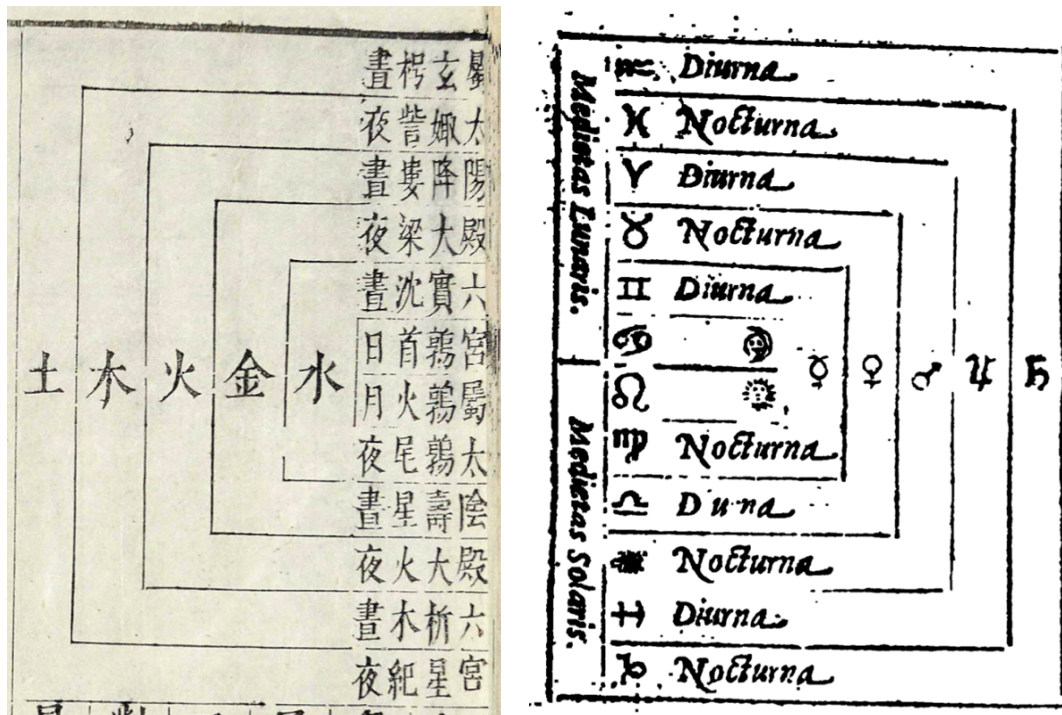


Figure 8.1 – The domiciles of the planets: left, *Tianxue shiyong* (p. 21); right, *Isagoge* (fol. 43)

Several of the diagrams in the *Tianxue shiyong* follow the same form of representation of European astrology manuals. These include tables of essential dignities, a scheme of the houses (see figure below) and a diagram of the aspects. The five planets bear the names of the five elements: star of water 水 (Mercury), star of metal 金 (Venus), star of fire 火 (Mars), star of wood 木 (Jupiter) and star of soil 土 (Saturn).

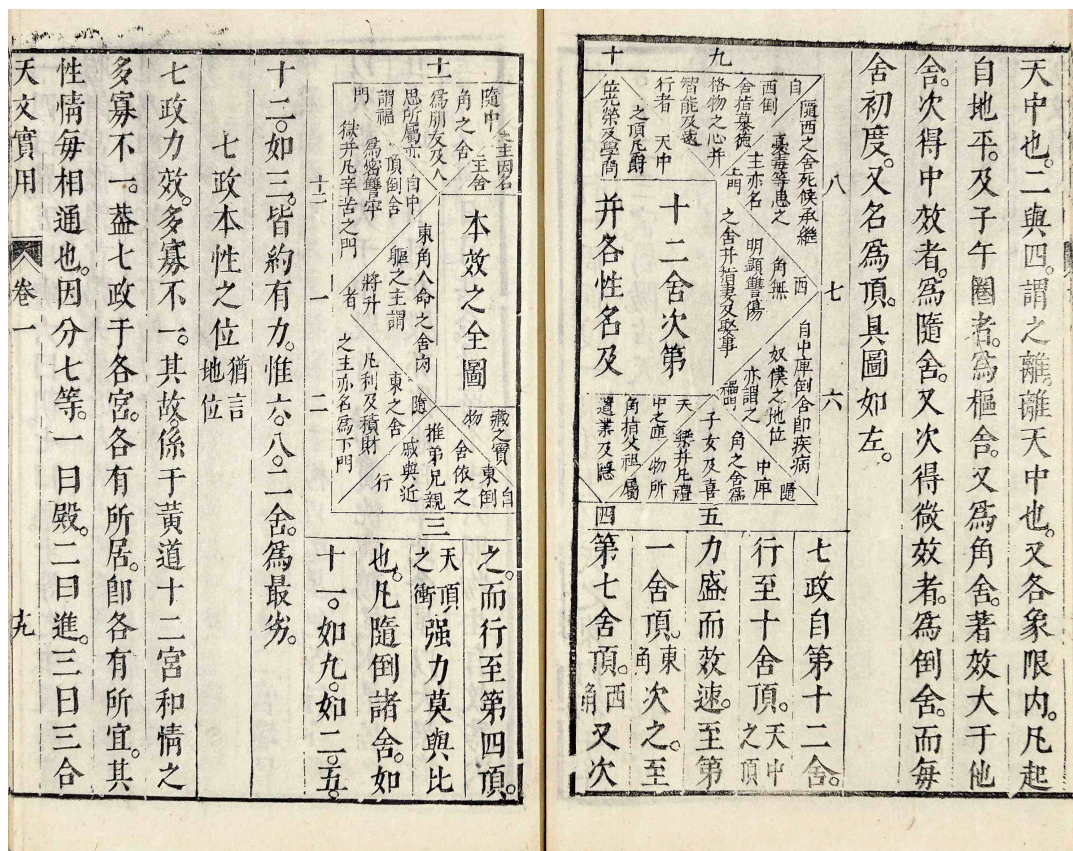


Figure 8.2 – The Astrological houses, *Tianxue shiyong* 天學實用 (pp. 19-20).

The Pacing of the Heavens by Smogulecki

Another book was made by the polish Jesuit Jan Mikołaj Smogulecki (1610–1656). Of noble origin and a politician, he joined the Society around 1636 and set out to the East as a missionary in 1645, where he also taught mathematics and astronomy. In 1652 Smogulecki collaborated with the Chinese scholar Xue Fengzuo (1628–1680) in the translation of western astrological texts which together with Fengzuo’s work, resulted in the *Tianbu zhenyuan* 天步真原 (*The Principles of the Pacing of the Heavens*).³¹⁹ One of the reasons for Fengzuo’s main interest in western astrology appears to have been the search for a reliable method of prediction that could replace the method of the ‘five planets’ (*wuxing* 五星) that he considered insufficient for prediction.³²⁰

The text has several astronomical sections, and four others on astrology: *Weixing xingqing bu* 緯星性情部 (‘On the nature of planets’), *Shijie bu* 世界部 (‘On the World’), *Xuanze bu* 選擇部 (‘On elections’), and *Renming bu* 人命部 (‘On Human Fate’).³²¹ This arrangement conforms to the typical structure for an astrology manual, containing first the basic principles, then the main topics: meteorological astrology, elections, and nativities. The last astrological section the *Renming bu* is the most extensive and has been identified by Nicolas Standaert as a translation of Cardano’s commentary of the *Tetrabiblos*.³²² He also suggests the possibility of other sections being also taken from Ptolemy or Cardano, or even composed by Smogulecki himself. In fact, as mentioned above there are many texts on astrology which are composed out of the author’s own knowledge mixed with quotations or copied sections of known astrological authorities. Again, although further research will be needed, it is reasonable to think that this might be the case with some parts of the *Tianbu zhenyuan*. Moreover, as noted above regarding the source of the *Tianxue shiyong*, it is sometimes difficult to identify the exact source, if one exists. Smogulecki’s authorship of this work has been occasionally questioned on the grounds

³¹⁹ For an overview of the importance of the *Tianbu zhenyuan*, see Shi Yunli, ‘Nikolaus Smogulecki and Xue Fengzuo’s “True Principles of the Pacing of the Heavens”: Its Production, Publication, and Reception’, *East Asian Science, Technology, and Medicine*, no. 27 (2007): 63–126; Zhu, ‘Integrating Human with Heaven by Numbers: A Research on Xue Fengzuo’s Astrology. 以数合天——薛凤祚星占工作研究’; for Xue Fengzuo’s role in early modern chinese mathematics, see Longfei Chu and Haohao Zhu, ‘Re-Examining the Impact of European Astronomy in Seventeenth-Century China: A Study of Xue Fengzuo’s System of Thought and His Integration of Chinese and Western Knowledge’, *Annals of Science* 76, no. 3–4 (2019): 303–23.

³²⁰ Chang Che-Chia, ‘Translation and Adaption: The Continuous Interplay between Chinese Astrology and Foreign Culture’, in *Coping with the Future: Theories and Practices of Divination in East Asia*, ed. Michael Lackner (Leiden: Brill, 2017), 409–11.

³²¹ Yong Hoon Jun, ‘Western Horoscopic Astrology in Korea’, in *Coping with the Future: Theories and Practices of Divination in East Asia*, ed. Michael Lackner (Leiden: Brill, 2017), 492–94. See also Yunli, ‘Nikolaus Smogulecki and Xue Fengzuo’s “True Principles of the Pacing of the Heavens”: Its Production, Publication, and Reception’, 77–78.

³²² Standaert, ‘European Astrology in Early Qing China: Xue Fengzuo’s and Smogulecki’s Translation of Cardano’s Commentaries on Ptolemy’s’.

that as a Jesuit he would not be involved with astrology.³²³ Again, this has been proven to be a mistaken conclusion. Besides, a general overview of the book's table of contents, suggests that its astrological sections appear to fall well into the category of natural astrology, licit even for a Jesuit. The *Tianbu zhenyuan* became a very popular astrological text in China, receiving numerous editions and addenda, and it appears to have influenced several other works in China and in the surrounding countries like Korea.³²⁴ Han Qi considers that the *Tianbu zhenyuan* became more disseminated among the common people, which would account for its greater impact.³²⁵ The *Tianxue shiyong*, on the other hand, circulated primarily among the cultured elite, being only occasionally quoted, and therefore less influential.

As far as this research could ascertain, these two books are the only printed technical astrological texts of Jesuit authorship. It is not a surprise that they would exist outside the restricted environment of Europe, where the Society must have restrained any purely astrological work from being published by one of its members. In China, these rules were accommodated to deal with a different cultural reception of divination and of astrology, being also a way of introducing licit, scientific western astrology. While being an obvious exception, these two books are, at the same time, perfectly in line with the rest of the scientific literature that the Jesuits produced for the Chinese audiences.

Verbiest's astrological reports

A reference must also be made, albeit brief, to the contribution of Ferdinand Verbiest (1623-1688) to the dissemination of western astrology in China. Of Flemish origin, Verbiest joined the Society in 1641 and completed his studies in Rome. Although he wanted to go to the New World, he was instead sent to the Far East in 1658. In 1669 due to its astronomical skills, he became the head of the Tribunal of Mathematics, following in the footsteps of his mentor, Schall. As part of his duties Verbiest had to submit meteorological predictions for the emperor, a task he describes in Chapter ten of *Astronomia Europaea* (Dillingen, 1687). In it he mentions that weather forecast was a difficult prediction and it could have negative consequences to the reputation of the astrologer:

Apart from the annual calculation of the above mentioned three (calendar-)books, another not small burden has also been conferred upon me. Each half-quarter of a year (i.e. each interval of 45 days, when the meteorological conditions change), therefore 8 times a year

³²³ Standaert, 53–54; Che-Chia, 'Translation and Adaption: The Continuous Interplay between Chinese Astrology and Foreign Culture', 409–10.

³²⁴ See: Jun, 'Western Horoscopic Astrology in Korea'.

³²⁵ Qi, 'From Adam Schall Von Bell to Jan Mikolaj Smogulecki', 489.

I must draw up the figure of the firmament. I also have to forecast very meticulously the future disposition of the Heavens at a given half quarter, and the change in the atmosphere, including its consequences like plague or other diseases, food shortage, etc., indicating also the days on which wind, lightning, rain, snow and other similar phenomena will appear. All this must be presented to the Emperor by means of a petition, which is afterwards entrusted to the college of the Ko-lao's to be filed. Anyone will realize the difficulty of this task, and the danger to which the reputation of a good astrologer is exposed, unless he operates with the greatest care, especially in dealing with people who are as ignorant of astrology as they are acquainted with other things and gifted with acute intelligence.³²⁶

In these reports he is using the astrological corpus commonly used in Europe based on lunations, ingresses and eclipses, and that Smogulecki included in the *Shijie bu* section of the *Tianbu zhenyuan*.³²⁷ Like his colleagues, Verbiest is practicing a well-accepted form of natural astrology, revealing it to have been a part of his education and his tools as an astronomer.

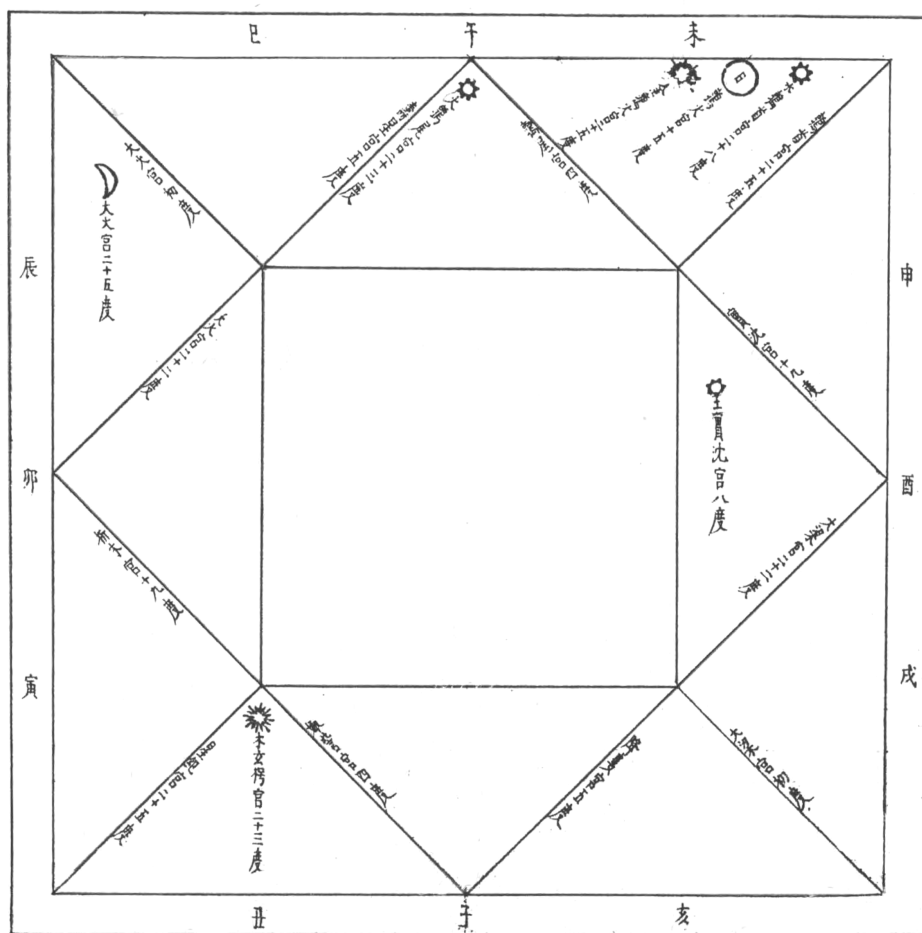


Figure 8.3 – Astrological figure from one of Verbiest's reports (from Konings 1990)

³²⁶ Noel Golvers, ed., *The Astronomia Europaea of Ferdinand Verbiest, S.J. (Dillingen, 1687): Text, Translation, Notes and Commentaries* (Nettetal: Steyner Verlag, 1993), 79.

³²⁷ A first study of these reports was presented by Patricia Konings, 'Astronomical Reports Offered by Ferdinand Verbiest S.J. to the Chinese Emperor' (Sixth International Conference on the History of Science in China, August 2–7, Cambridge, 1990).

Notes on Japan and India

Having dealt with the case of China, Japan and India will be briefly discussed. A full study of these cases is out of the scope of the present work as each would be a research project on its own, moreover the relative scarcity of specific academic studies on this matter does not allow the presentation of a thorough picture of the role of astrology in the interchanges of the Jesuits with these two cultures.

Japan: astrology, apostasy and criticism

Here, there are some similarities to China, not only due to the close proximity of the two cultures, but also because most exchanges of the Jesuits with Japan were made via China. One interesting text is the *História da Igreja do Japão* by the Jesuit João Rodrigues Tçuzzu (1561-1633), which contains an account of the traditions, history and culture of Japan;³²⁸ among these are descriptions of Japanese astrological practices.³²⁹ Rodrigues lived in Japan from 1577 to 1610, known as an interpreter due to his knowledge of the Chinese and Japanese languages.³³⁰ Astrology is referred to in several instances throughout the text which describes Japanese astronomy, divisions of the heavens, cosmology, and measurement of time. As with many authors of period, the terms astronomy and astrology are interchangeable. In chapter nine, ‘Of Sinic astrology, and Japanese in particular’ (‘Da Astrologia Sinica, e Japoa em particular’) he gives an overview of the several divisions of astrology:

The Chinese, and the Japanese who took from them their sciences, divide it into two branches that are: natural magic, which deals with the production of the Universe, of the principles of natural things, and of the generation and corruption of things, and judiciary *Genethliacal*, of which we shall speak in the treatise on the sects of these kingdoms; and astronomy, which deals with the heavens. They both refer by these two words Eki [易], Reki [曆], that the Chinese pronounce Yi Li. The first signifies the natural magic, the second astronomy. They divide astronomy into speculative and practical. Speculative deals with the machine of the superior and inferior world: of the heavens and their movements; of the rising and setting of the celestial signs and planets; of the material sphere and its circles; of conjunctions of the planets; and of the eclipses of the Sun and Moon; of planetary hours; and of time, and of all else in the same manner that our astrologers deal with the matter. Practical astrology that others call judiciary or

³²⁸ Lisboa, Biblioteca da Ajuda, Cod. 49-IV-53. The manuscript was first published in João Rodrigues, *História Da Igreja Do Japão Pelo Pe. João Rodrigues Tçuzzu, SJ. 1620-1633*, ed. João do Amaral Abranches Pinto, 2 vols (Macau: Notícias de Macau, 1954). It was translated to English by Michael Cooper in *João Rodrigues's account of sixteenth-century Japan*, trans. Michael Cooper (London: Hakluyt Society, 2001). Recently the astronomical section was the subject of a new transcription and study in Ana Garção, ‘Astronomia e Cosmologia Japonesas Pelos Olhos de Um Europeu: O Manuscrito de João Rodrigues Tçuzzu, Biblioteca Da Ajuda, Cod. 49-IV-53’ (MA dissertation, Lisboa, Universidade de Lisboa, 2016). The latter will be the used as the source for all citations.

³²⁹ Lisboa, Biblioteca da Ajuda, Cod. 49-IV-53, fols. 156v-181r.

³³⁰ For a biography of Rodrigues, see Michael Cooper, *Rodrigues the Interpreter: An Early Jesuit in Japan and China* (New York: Weatherhill, 1974).

prognosticatory, also divinatory, deals with the bad or good days to work, and other contingent things that are prognosticated by the celestial appearances, aspects and conjunctions of the planets among themselves and other stars.³³¹

In this first description Rodrigues is rather neutral in his account and arranges the Japanese practices adjusting them to the European division of astronomy. The beginning of the last sentence, on practical astrology, follows the same word arrangement used by Clavius in the *Commentarius*. However, later in the text, his tone changes. In chapter sixteen, ‘On practical judiciary astronomy of these nations, and various superstitions that they have’ (‘Da Astronomia pratica judiciaria destas naçoens, e varias superstições que nisto tem’) he describes in detail the various practices of astrology:

It cannot be easily said how these nations of Japan, China and Korea, are so prone to the vain superstition of judiciary, which depends on the aspects of the planets and stars, and other divinations of this kind that they have, that they seem not to take a single step without governing themselves by it; they regulate their actions, and also the status that they will take for their entire life, and the place of living, and the occupation that they will have. And given that the Japanese are excessive in this, however the Chinese, from whom the Japanese received this most vain art, exceed all others to a superlative degree, in such way that the ancient Chaldeans, from whom this art spread all over the world, seem to be inferior to them in this matter.³³²

Here Rodrigues considers these practices as vain superstition, a critique which is of course coming from his Christian perspective. Contrary to European astrology, which was regulated by the Church, foreign astrology had no restrictions over predictions of contingent events. He then proceeds to explain the three versions or types of judiciary. The first he names natural magic; it deals with the complexion, fate, and actions indicated by the celestial influences at birth. This would be the equivalent of western nativities:

The first is natural magic that is taught by the Chinese philosophers called Jasha [邪視] in the same manner as the Chaldeans, Persians and Ancient Babylonians, through which

³³¹ Dividem os Chinas, e Japoens que delles tomarão suas sciencias [,] em dous membros .ss. em Magia natural que trata da produção do Universo dos principios das couzas naturaes, e das geraçoens, e corrupçoens das couzas do fato, e judiciaria genithlica de q[ue] avante fallaremos no tratado das seitas destes reynos, e em Astronomia q[ue] trata dos Ceos; ambas significão por estas duas palavras, Ye ky [Eki, 易], Re Ky [Reki, 曆], que o China diz Yê [Yi] Liê [Li]. A primeira significa a magia natural. A segunda a Astronomia. Dividem elles a Astronomia em speculativa, e practica. A especulativa trata do machina do mundo superior, e inferior: dos Ceos e seus movimentos: do nascimento, e o caso dos Signos Celestes, e planetas: da sphaera material, e seus circulos: das conjunçoens dos planetas, e dos Eclipses do sol, e lua: das horas planetarias, e do tempo, e de tudo o demais a seu modo, de q[ue] os nossos Astrologos tratão desta matéria [,] a Astrologia pratica que outros chamão judiciaria, ou prognosticativa, ou tambem adivinhativa, trata do mao, e bom dia para obrar, e de outras couzas contingentes que pelas apparencias Celestes [,] aspecto; e conjunçoens dos planetas entre sy, e com as estrellas prognostica. Garção, ‘Astronomia e Cosmologia Japonesas Pelos Olhos de Um Europeu: O Manuscrito de João Rodrigues Tçuzzu, Biblioteca Da Ajuda, Cod. 49-IV-53’, 51–52 (my translation).

³³² Não se pode facilmente dizer quam dadas sejam estas naçoens de Iapão, China, e Corias [Coreia] a vão superstição da Iudiciaria, que depende dos aspectos dos planetas, e estrellas, e de outras varias sortes que te[m] deste genero, que parece não darem passo em que por ella se não governem, regulem suas acçoens, e ainda o estado que hão de tomar por toda a vida, e lugar de habitação, e exercicio a que se hão de dar. E posto que os Iapoens nesta parte tem muito excesso; comtudo os Chinas, de quem os Japoens receberão esta vanissima arte, excedem a todos os demais em supremo grao, de modo q[ue] os antigos Caldeos de quem esta arte se espalhou p[or] todo o mundo, parece ficarem lhe inferiores nesta parte. Garção, 79.

by birth and natural complexion conforming to the celestial influence received in conception, are judged the nature of things and the fate or destiny that conforms to each person ...³³³

The second appears to be a mixture of the western branches of election, interrogations and revolutions. He names it ‘practical judiciary astronomy’ (‘Astronomia pratica judiciaria’) which by the movements and aspects of the planets selects the good and bad days to work, travel, marry, build, bury the dead, and make war. It is also this type that prognosticates war, drought, floods, sickness, and the location of lost things.³³⁴ The third, which is not named, deals with the selection of the proper place to build and dwell (i.e. ‘feng shui’, ‘fusui’ in Japanese).³³⁵ It is not certain if many of the practices he gathers under the name ‘astrology’ would be considered so in the European tradition, as his account suggests some magical and divinatory practices outside the scope of what is usually considered astrology. Nonetheless, his account is an excellent example of the reception of Japanese (and to a certain extent Chinese) astrological practices, by a European scholar.

Another notable reference is the work *Kenkon Bensetsu*, a Japanese treatise on western cosmology.³³⁶ The text is usually attributed to the Jesuit apostate Cristovão Ferreira (1580-1650), also known by his Japanese name, Sawano Chūan,³³⁷ and commented by the neo-Confucian scholar, Mukai Genshō (1609-1677).³³⁸ This work became popular and can be considered, according to Pinto dos Santos, ‘the best-known treatise of Western cosmology written in Japan, which came to symbolize the legacy of the Jesuit scientific influence there during the seventeenth century’.³³⁹ The *Kenkon Bensetsu* is a treatise on natural philosophy; it provides only the basic foundations of astronomy.³⁴⁰ The same can be said of the astrological principles.³⁴¹ These are discussed in volume four, paragraphs 27 and 28 and pertain to the

³³³ A primeira he a Magia natural que propriamente professão os Philosophos Sinenses chamados Iaxa [Jasha, 邪視] ao modo dos Caldeos, Persas, e Babilonios antigos, com a qual pelo nascimento e compleição natural conforme ao influxo celeste, que na conceição recebeo, julgão as naturezas das couzas, e o fado, ou destino, que conforme a isso cada hum ha de ter... Garção, 79.

³³⁴ Garção, 79.

³³⁵ Garção, 81.

³³⁶ For a comprehensive study of this work and a modern translation, see José Miguel Duarte Leite Pinto dos Santos, ‘A Study in Cross-Cultural Transmission of Natural Philosophy: The Kenkon Bensetsu’ (Universidade Nova de Lisboa, 2012).

³³⁷ For an account of Ferreira’s life see Hubert Cieslik, ‘The Case of Christovão Ferreira’, *Monumenta Nipponica* 29, no. 1 (1974): 1–54.

³³⁸ The attribution to Ferreira is questioned by José Pinto dos Santos, which proposes as the possible author the Italian Jesuit Giovanni Antonio Rubino and Ferreira as the translator, see Santos, ‘A Study in Cross-Cultural Transmission of Natural Philosophy’, 258–63, 825–26.

³³⁹ Santos, 305.

³⁴⁰ For a full discussion of the book’s contents see Santos, 703–824.

³⁴¹ There have been some remarks regarding the astrological content of this book as being an indicator of that it might not come from a Jesuit source, as they ‘were strongly opposed to astrology’, as in Shigeru Nakayama, ‘The First Appearance Of Aristotelian Cosmology In Japan, Kenkon Bensetsu’, in *The Orientation of Science and Technology: A Japanese View*

general nature of the planets and the twelve zodiacal signs. For example, in paragraph 27, ‘About the Stars’, when discussing the planets Mars and Jupiter it is stated that:

In the Fifth Heaven there is Mars. This Heaven makes one turn in the space of about two years. Mars being warm and hot has the *vigour* of dryness and rules over the phlegm.³⁴² Therefore extreme courage belongs to this star. When phlegm overflows certainly there is excess of courage. When the stars below this star make no obstacle and it reveals its own nature through a child at his birth, [his] height is tall, [his] colour white, somewhat reddish, and the five [parts of the] body are hairy. The time when it shows its own nature is the day of fire between the two limits of Horse and Sheep.³⁴³ It gives colour to bronze and iron. In the Sixth Heaven there is Jupiter. This Heaven makes one turn from west to east in the space of about twelve years. This star being warm and hot has plentiful *vigour*. Therefore, it warms and nurtures every sentient being. For example, like the pure blood of the five [parts of the] body, it plentifully warms the things [and] among the five stars is the one that makes most to feed and raise the myriad things. If below Jupiter there is not the obstacle of a conjunction, and it reveals its own nature through a child at his birth, [his] colour is white with the face somewhat red, [his] head’s hair is somewhat thin, the shape of his face beautiful, and the five [parts of the] body have always warm *vigour*, and [he is] clever. The time when it shows its own nature is in the day of wood between the two limits of Horse and Sheep.³⁴⁴ It gives colour to tin.³⁴⁵

The remaining planets are also given their period, qualities, complexion, physiognomic traits, strongest point in time (the planetary day and hour), and corresponding metal. In paragraph 28, ‘About the Twelve Mansions’, the signs and the domiciles of the planets are described:

Concerning the nature of these Twelve Mansions; and [concerning] also which from amongst the Seven Stars is the star that rules over which Mansion and at what time, it can be said that all the Seven Stars are always bestowing [their own] nature on the myriad things of the World. However, depending on the Mansion and depending on the star, in the season [the star] is driving inside a Mansion it imparts its own real nature, giving life to the things. Therefore, it can be said that the stars also rule over the Mansions and that the Mansions also follow those stars. Moreover, the Sun and the Moon each one rules over one Mansion and each one of the Five Stars rules over two Mansions.³⁴⁶

There follows an enumeration of the various domiciles of the planets and their opposite, the exiles or detriments. Then the text offers a description of the twelve signs (here referred to as ‘mansions’) which are named after their Oriental counterparts. For example, the signs of Libra (Hen) and Sagittarius (Boar), are described as:

From the middle of the Eight Month until the middle of the Ninth Month the Sun drives through the Mansion of the Hen. The time it reaches this Mansion is the Day of Equal

(Leiden: Brill, 2009), 1. Here, of course the author is merely following the mainstream historiography; however, the evidence presented so far in this research, invalidates such a statement.

³⁴² Here there is either an error of translation or of the manuscript itself, as Mars is associated to choler and not to phlegm, as becomes clear in the next sentence when it is associated with courage; phlegm would be associated with idleness.

³⁴³ Meaning in the day of Mars (Tuesday) when it reaches the eighth hour of the day, that is the second planetary hour of Mars (the first being the first planetary hour of the day).

³⁴⁴ The same as above for Mars, meaning in the day of Jupiter (Thursday) when it reaches the eighth hour of the day, that is the second planetary hour of Jupiter (the first being the first planetary hour of the day).

³⁴⁵ Santos, ‘A Study in Cross-Cultural Transmission of Natural Philosophy’, 686.

³⁴⁶ Santos, 692.

[Duration] of Day and Night of autumn. As the nature of the Hen is similar to the nature of element air, [the Hen] being damp it has the *vigour* of warmness, and is ruled over by Venus in its first place. The children that are born in the season when the Sun is driving through this Mansion, are persons who are properly courteous and are very courageous and knowledgeable. (...) From the middle of the Tenth Month until the middle of the Eleventh Month the Sun drives through the Mansion of the Boar. As the nature of the Boar is similar to the nature of element fire, [the Boar] being scorching hot it has the *vigour* of dryness, and is ruled over by Jupiter in the first place. The children that are born in the season when the Sun is driving through this Mansion are persons who are properly courteous and are shy in front of people. The children of these persons do not obey their parents.³⁴⁷

In all these descriptions it is curious to see how standard astrological terminology is changed to accommodate to the language: for example, the signs are expressed as the corresponding animals of the Chinese Zodiac, as well as the hours and the planetary days.³⁴⁸ Beyond these paragraphs there are only general remarks as to strength of the planetary influence derived from their movement. So, as far as the *Kenkon Bensetsu* is concerned, presents no exposition of the western astrological interpretative system as it is found in other Jesuit printed texts such as Sempill's and Schott's. In fact, its astrological content is very simple and limited to planetary qualities, planetary domiciles and the attributes of the signs. In the latter, the astrological qualities ascribed to the influence of the signs in humans drift a little more into the judicial interpretations that in any other Jesuit texts studied so far. In fact, they are attributed to the those born at the time the Sun is transiting the signs, and not to a configuration present in an astrological figure, such as the ascendant. In this regard there is no mention of the twelve astrological houses which are fundamental for astrological interpretation. This is a very simplistic form of presenting the astrological system and it is much closer to what would be found in a popular almanac or a *reportorio*, than in a treatise of natural philosophy. In sum, the principles of western astrology presented in the *Kenkon Bensetsu* are quite simple and follow the general introductory nature of the text on cosmology and astronomy. The above-mentioned treatises published by Jesuits in China, which most likely reached Japan, offer a much more complex treatment of astrology.

³⁴⁷ Santos, 694.

³⁴⁸ Each hour of the Japanese and Chinese system correspond to two European hours and is named after the twelve zodiacal animals: the first hour is that of the Rat, from 11 pm to 1 am, then the Ox, from 1 am to 3 am, the Tiger (3 to 5 am), the Hare (5 to 7 am), the Dragon (7 to 9 am), the Snake (9 to 11 am), the Horse (11 am to 1 pm), the Sheep (1 to 3 pm), the Monkey (3 to 5 pm), the Hen (5 to 7 pm), the Dog (7 to 9 pm), and the last hour, the Boar (9 to 11 pm). The days (as the planets) are named after the five Chinese elements, to which are added the two luminaries: day of the Moon (Monday), day of fire (Tuesday), day of water (Wednesday), day of wood (Thursday), day of metal (Friday), day of soil (Saturday) and day of the Sun (Sunday).

But the *Kenkon Bensetsu* is also interesting for the commentaries of Mukai Genshō. They offer one example of the reception of European Astrology by Japanese scholars.³⁴⁹ In the astrological sections, for the most part, he accepts the astronomical perspective, but as to the discussion of the influences of the planets in terms of the four Aristotelian elements and qualities (as opposed to the five elements/phases of Chinese and Japanese philosophy) he considers that ‘The disciples of Barbarian Learning do not know about the *telluric* and the *solar* or the *five phases*. Therefore, their discourse about the characteristics of the Seven Lights, all [their] theories being twisted reasoning’.³⁵⁰ And regarding the signs and the seasons, he concludes that ‘Barbarian learning is just skin deep, and does not know the marrow [true spirit]’.³⁵¹

Indian oddities

India offers interesting possibilities as a case study for this type of interchange. On the one hand astrology was an integral part of Hindu culture, and on the other, contrary to many Chinese and Japanese divinatory methods, Indian astrology had several common roots with its European counterpart. Thus, many fundamental elements of Indian traditional astrology would be for the most part familiar to European practitioners. Indian astrology had its origin in the same Babylonian and Hellenistic practices which were probably introduced into India in the early centuries CE,³⁵² and another of its forms, Tājika, was based on a later Persian-Arabic influx of astrological doctrine.³⁵³ Indeed, there were many exchanges with Arabic traditions in the medieval period, and authors such as Abu Ma’shar and Albiruni discuss Indian practices of astrology in their treatises.³⁵⁴ However, despite this long history of interchange little is known

³⁴⁹ Santos, ‘A Study in Cross-Cultural Transmission of Natural Philosophy’, chaps 7 and 8. See also Henrique Leitão and José Miguel Pinto dos Santos, ‘O Kenkon Bensetsu e a Recepção Da Cosmologia Ocidental No Japão Do Séc. XVII’, *Revista Portuguesa de Filosofia* 54, no. 2 (1998): 285–318.

³⁵⁰ Santos, ‘A Study in Cross-Cultural Transmission of Natural Philosophy’, 688.

³⁵¹ Santos, 697.

³⁵² The dating of this introduction and of some the earlier texts is still under discussion. On this topic see: David Pingree, ‘Astronomy and Astrology in India and Iran’, *Isis* 54, no. 2 (1963): 229–46; *Yavana Jataka Sphujidhvaja: Translation*, vol. 2, 2 vols (Cambridge: University Of Harvard, 1978); *Jyotiḥśāstra: Astral and Mathematical Literature*, A History of Indian Literature, v. 6, fasc. 4 (Wiesbaden: Harrassowitz, 1981); *From Astral Omens to Astrology* (Roma: Istituto italiano per l’Africa e l’Oriente, 1997). For an overview of Hindu astrology see Martin Gansten, ‘Astrology and Astronomy (Jyotiṣa)’, in *Brill’s Encyclopedia of Hinduism. Sacred Texts, Ritual Traditions, Arts, Concepts*, ed. Knut A. Jacobsen, vol. 2 (Leiden: Brill, 2010), 281–94; ‘Astrologers’, in *Brill’s Encyclopedia of Hinduism. Sacred Texts, Ritual Traditions, Arts, Concepts*, ed. Knut A. Jacobsen, vol. 3 (Leiden: Brill, 2011), 217–21.

³⁵³ On this topic see: Martin Gansten, ‘Samarasimha and the Early Transmission of Tājika Astrology’, *Journal of South Asian Intellectual History* 1, no. 1 (2019): 79–132; and *The Jewel of Annual Astrology: A Parallel Sanskrit-English Critical Edition of Balabhadra’s Hāyanaratna* (Leiden: Brill, 2020), 1–13.

³⁵⁴ On Albiruni, see Edward C. Sachau, ed., *Al-Biruni’s India*, 2 vols (London: Kegan Paul, Trench, Trubner & Co. LTM, 1910).

regarding the interaction between Indian and European astrology in the early modern period, if one ever existed.³⁵⁵

The presence of the Jesuits in India was long, beginning in 1506 with the arrival of Francis Xavier. As in other missions, the understanding of local science and technology was of the outmost importance. One of these sciences was astronomy and its prognosticative half, astrology. Its study was important to the Jesuit missionaries, in particular for those more inclined to the mathematical sciences. In the Indian context astrology was one of the main applications of mathematical and astronomical knowledge, and thus astronomical observation and calculus were well developed and established in Indian culture. Several instances involving Jesuits and astrology in India are cited but they are usually referred to briefly in the context of the history of astronomy (as are most references to Jesuits and astrology).³⁵⁶ An example is Giovanni Antonio Rubino (1578–1643), missionary in India, China and Japan, who studied with Clavius. In a letter written in 1609 from Chandrapur to his teacher he comments on Indian astronomy and refers its astrological use:

The Brahmins, who are the literati of this kingdom, are very given to the understanding of the movements and aspects of the planets, and stars, in particular of 27 of them by which they govern and rule themselves. Your Reverence will be astounded at how they predict the hour and minute of eclipses, either of the sun, as of the moon, without knowing the way by which eclipses are made. I have attempted many times to make them tell me the manner in which they take the aspects of the planets, but it was never possible to get them to do it, and they do not wish to teach the things they know to others, except to their relatives, and in secret.³⁵⁷

This unwillingness to discuss their knowledge with outsiders could account for the lack of exchange regarding astrological practices during the early modern period. Nonetheless, the Jesuit practice of accommodation did result in their reaching some degree of dialogue. One of such examples is that of the Jesuit missionary Roberto de Nobili (1577-1656). He learned Sanskrit, Telugu and Tamil and by adopting the local Indian customs, was able to be more successful in his spreading of Christianity. In 1615 he wrote a critical text, the

³⁵⁵ Papers such as Lotika Varadarajan's present only a general overview of the astrology in both cultures without addressing any possible interactions. See Lotika Varadarajan, 'Astrology and Astronomy: the Indo-Portuguese encounter', in *As relações entre a Índia Portuguesa, a Ásia do Sueste e o Extremo Oriente: actas do VI Seminário Internacional de História Indo-Portuguesa*, ed. Artur Teodoro de Matos and Luís Filipe Tomás (Macau ; Lisboa: s.n., 1993), 485–99.

³⁵⁶ See for example Dennis Francis Almeida and George Gheverghese Joseph, 'Kerala Mathematics and Its Possible Transmission to Europe', in *Critical Issues in Mathematics Education*, ed. Paul Ernst, Brian Greer, and Bharath Sriraman (Charlotte: Information Age Publishing, 2009), 180–81.

³⁵⁷ Questi Bramani, che sono i letterati di questo regno sono molto dati alla cognitione delli movimenti, et aspetti delli pianeti, e stelle, e principalmente di 27 per le quali si governano e reggono, e V.R. si stupirà come predicono l'hora, e minuto degl'eclissi così del sole, come della luna, con non sapere il modo come si faccino gl'eclipsi. Io pensai molte volte di farmi dichiarare il modo con che tirano gl'aspetti delli pianeti, ma non fu mai possibile a volermelo dichiarare, e le cose che sanno non le vogliono insegnare ad altri, se non a suoi parenti, et in secreto. Christopher Clavius, *Corrispondenza*, ed. Ugo Baldini and Pier Daniele Napolitani, vol. 6.1 (Pisa: Università di Pisa, Dipartimento di matematica, 1992), 142–43.

Ajñānanivāraṇam (Dispelling of Ignorance), against the *Vedāṅga-jyotiṣa*, one the earliest works on astrology and astronomy, but which had for centuries been considered outdated.³⁵⁸ These contacts of westerns and of Jesuits with Indian jyotiṣa should be studied further to understand if and how both cultures received each other's practices of astrology; the sixteenth- and seventeenth-century accounts are more likely to be relevant, since by the eighteenth century, with very few exceptions, astrology was no longer considered as part of science by European scholars.

European astrology in the East

China, and to a lesser extent Japan and India offer important information as to the role of astrology in the scientific exchanges of the Jesuits. In China this relevance is quite noticeable as it provides the exception for the absence of printed astrological works by Jesuit authors. The *Tianxue shiyong* and *Tianbu zhenyuan* stand as a clear indication of the theoretical knowledge and the practical application of astrology by Jesuit scholars and further consolidate the evidence presented in the previous chapter. These two printed works show that Jesuit scholars understood the importance of astrology as a knowledge of intercultural interest, and thus a valuable commodity in their interchanges. Japan shows the same type of influence with the *Kenkon Bensetsu*. This initial dissemination of western astrology by Jesuits was then influential in the production of other texts in the following decades and shaped the Chinese practice of astrology. It also had its impact on the philosophical views regarding divination. Xu Guangqi (1562-1633), a scholar converted to Christianity, who had worked with both Ricci and Schall, took the western point of view and considered that the use of astrology for the prediction of calamities and propitious days should be forbidden by law; it should be applied only to the forecast of weather and for medical prescriptions.³⁵⁹ This is of course the European Christian view of natural astrology brought forth by the Jesuits to China. The fact that Xu Guangqi mentions this is in itself a strong evidence that it was part of the teaching of the Jesuits; perhaps even as early as Ricci. The participation of Smogulecki's in the *Tianbu zhenyuan* also had a considerable impact: firstly, on the very editor of the work, Xue Fengzuo, who included it with the purpose of using western astrology to replace certain Chinese doctrines he considered less accurate; secondly, in the book's wide readership, together with the dissemination of Schall's *Tianxue*

³⁵⁸ This work is partially discussed in Vincent Cronin, *A Pearl to India: The Life Roberto Nobili* (London: Rupert Hart-Davis, 1959), 176–80. Unfortunately the few excerpts of the text presented are only on astronomical matters.

³⁵⁹ Yi-Long, 'L'attitude des missionnaires jésuites face à l'astrologie et à la divination chinoises', 92.

shiyong, provided the basis for the production of other Chinese works on western astrology during the seventeenth and eighteenth centuries in China and in the surrounding countries.

It is often implicitly assumed in the historiographic narrative (especially in more dated works) that the Jesuits only published astrological texts to please their Chinese readership, as a tactic to reach a culture where prediction as divination were an integral part of life. Indeed, the use of astrology (or any other form of knowledge) for political agendas was common throughout history and it seems evident that neither Schall nor Verbiest were completely guiltless in this regard. But given the evidence so far presented as to how astrology was also a part of the life, learning, teaching, and perhaps even practice, of any Jesuit astronomer, there is no reason to deny that, together with astronomy, they would also teach their knowledge of astrology. Thus, and specifically in the Chinese case, the cultural context, the accommodation process, as well as the distance from the European centre and its regulating institutions, facilitated the emergence of this astrological knowledge.

The case of India is an entirely different matter. Here the interaction was not one of dissemination of a new cosmology or astrology, but an encounter of two views of the same base concepts that had developed in two utterly different cultural backgrounds; the particulars of this interaction need further research. There are of course other regions where the Jesuits might have engaged in the matter of astrology and that would be worthwhile investigating, one being the aforementioned reports by Cristoforo Borri of the astronomical and astrological practices in Vietnam. However, these other examples will have to be addressed elsewhere.

The activity of the Jesuits in the New World is another unique case, which will be dealt in the next chapter. In the newly discovered regions of the Americas there were no precedents of contact, even if only legendary. The differences were not only geographical and cultural but also astronomical, since in the Southern Hemisphere astrological practice faced the challenge of dealing with a different celestial and astronomical perspective.



Chapter 9. Brave new world: Jesuits and astrology in the Americas

The astrology of the New World is a topic of the utmost importance for the history of the exploration of South America. While in the Far East the skies were for the most part the same as in Europe, in the Southern Hemisphere they changed radically. This posed significant challenges to the astrologers since the astrological system was entirely based on the understanding of the celestial movements as experienced in the Northern Hemisphere. In southern latitudes practitioners were faced with different constellations unknown to the ancient authors, and the reversion of the seasons which were a crucial basis for the Ptolemaic explanation of astrology's operations. Thus, an important key to understand the impact of the colonization of the Southern Hemisphere on astrology is the testimonies of those practicing it in the New World. Although this topic has already been addressed by some historians, a systematic study of astrological practices in South America, including its theories and the points of view of their practitioners, is yet to be made. This chapter will provide an overview of the status of astrology in the New World, some of its main authors, focusing on the role of the Jesuit contributions.

Different skies, different influences

The debate on the celestial influences and of astrology in the New World can be arranged in two main issues. The first was the evaluation of the influences of the Southern Hemisphere in the complexion of the New World. This can be further divided into two main items. One being the study of celestial influences on its inhabitants, both foreign and those born there, the Indians and the Creole. This was closer to natural philosophy and medicine but would also be considered when interpreting individual natural tendencies. The second item would be the study of the celestial correspondences between signs and planets to the regions and cities of the New World. This information would be applicable not only for medicine, but also for the prediction of events, meteorology and the general political environment. The basis for this assessment was centred in the specific influences these lands received from the stars of the Southern Hemisphere. Thus, most considerations on the quality of the land begin by a description of its stars. Enrico Martínez (*Reportorio de los tiempos y historia natural desta Nueva España*, Mexico, 1606) published one of the earliest works regarding the nature and celestial influences of the New World.³⁶⁰ His *Reportorio* began with a lengthy discussion on the astrological

³⁶⁰ Enrico Martínez, *Reportorio de los tiempos y historia natural desta Nueva España* (México: Enrico Martínez, 1606).

correspondences of American regions and cities, as well as of the astrology and temperament of its inhabitants, a debate that would have important repercussions on the perceptions of racial difference between Iberian Spanish, Creoles and Indians.³⁶¹ This concerned not only natural philosophy but also astrology and medicine. It was based on the impact of the temperament of the new territories on European bodies and on the temperament of those born in the New World. The main lines of reasoning were that despite the fertile and temperate complexion of the New World, it generated individuals in which the phlegmatic temperament predominated. In this conception those born in the Americas would be less prone to work and endure strife, unreliable, idle and easy to indulge in sensuous activities; these were traits that had already been attributed to the Indians by the Europeans, but that were also said to be present in the Spanish born there, the Creole. The discussions on the astrological correlations were continued by many authors one of whom the physician Diego de Cisneros.³⁶² In his *Sitio, naturaleza y propiedades de la ciudad de Mexico* (Mexico, 1618) he disagreed with Martínez regarding the astrological correspondences but maintained the characterization of South Americans as phlegmatic.³⁶³ The largely negative evaluation of those born in the New World eventually generated a response in which the same arguments were used to demonstrate the superiority of the lands of New Spain and those born in them. So, in the second half of the seventeenth century a ‘patriotic astrology’ began to emerge that argued for the beneficial effects of the celestial influences in America. Authors used the argument that the southern skies produced a temperate and fertile land to affirm the superiority of those born there.³⁶⁴ Such are the cases of the Augustinian Antonio de la Calancha (1584–1684), whose work will be dealt in more detail below, the Jesuit Alonso de Ovalle (1603–1651), and also the Mercedarian Diego Rodriguez (1596–1668), who made several symbolic associations between astronomical phenomena of the New World and Christian imagery.³⁶⁵

³⁶¹ On this topic see Jorge Canizares Esguerra, ‘New World, New Stars: Patriotic Astrology and the Invention of Indian and Creole Bodies in Colonial Spanish America, 1600–1650’, *The American Historical Review* 104, no. 1 (1999): 33–68.

³⁶² On Cisneros see María Luisa Rodríguez Sala, ‘Diego de Cisneros y la medicina astrológica y geográfica novohispana’, *Gaceta médica de México* 130, no. 5 (1994): 402–11.

³⁶³ Diego de Cisneros, *Sitio, Naturaleza y Propiedades de La Ciudad de Mexico* (Mexico: Joan Blanco de Alcaçar, 1618). For a full study on Martínez and Cisneros opinions see Tayra Lanuza Navarro, ‘Adapting Traditional Ideas for a New Reality: Cosmographers and Physicians Updating Astrology to Encompass the New World’, *Early Science and Medicine* 21, no. 2–3 (2016): 156–81.

³⁶⁴ Esguerra, ‘New World, New Stars’, 50–59.

³⁶⁵ On Diego Rodriguez see Esguerra, 52–53.

A new astrology for the New World?

The second main issue was the functioning of astrology in the Southern Hemisphere and the adaptation of its rules and concepts to a different celestial perspective. The main source for the astrological practice, Ptolemy's *Tetrabiblos*, offered an explanation of the natures of the signs and of their planetary associations (known as the essential dignities) using the qualities of the four seasons, which in turn gave astrology a direct link with Aristotelian philosophy. Thus, when faced with the inversion of the seasonal cycle in the Southern Hemisphere astrologers had to reconsider these core concepts of the doctrine. Although further research is required on this topic, apparently, and despite the seeming importance of the matter, the discussion was neither as extensive as could have been expected, nor was it truly resolved by the astrologers, at least not in a clear unanimous way.

Cardano's commentary on Ptolemy is possibly the earliest astrological book to refer to this problem in a brief note concerning the seasonal shift in the Southern Hemisphere. Though very succinctly he hinted that the reversion should affect the domiciles of the planets. In the astrological doctrine each of the planets is said to rule or have domicile in certain signs, as already mentioned above (see Figure 8.1). The luminaries have one domicile each, the Sun rules the sign of Leo, and the Moon the sign of Cancer. The remaining planets have two domiciles, one in a feminine or nocturnal sign, the other in a masculine or diurnal sign: thus, the domiciles of Saturn are Capricorn and Aquarius; those of Jupiter are Sagittarius and Pisces; Mars rules Aries and Scorpio; Venus, Taurus and Libra; and Mercury, Gemini and Virgo. According to Ptolemy this attribution is related to the seasons.³⁶⁶ The luminaries have their domiciles in Cancer and Leo, as these are the more luminous signs of the year near the Summer solstice, the Moon, being a feminine planet in the feminine sign of Cancer, and the masculine Sun in the masculine sign of Leo. Capricorn and Aquarius, being the opposite signs and representing the darker and colder part of the year, Winter, become the domiciles of the cold and dry planet, Saturn. Jupiter whose sphere is below that of Saturn, is given the adjacent signs, Sagittarius and Pisces; Mars follows with Aries and Scorpio, Venus with Taurus and Libra, and finally Mercury with Gemini and Virgo.

Thus, considering Ptolemy's reasoning, at the end of his commentary of this section of the *Quadripartitum* Cardano infers that:

³⁶⁶ This explanation can be found in *Tetrabiblos*, I.17 and also I.10, 11 and 19.

From this it follows that in the Austral half Capricorn is the domicile of the Moon, and Aquarius that of the Sun, Pisces and Sagittarius of Mercury, Aries and Scorpio of Venus, Taurus and Libra of Mars, Gemini and Virgo of Jupiter, Cancer and Leo of Saturn.³⁶⁷

Cardano simply extends the precept of Ptolemy regarding the attribution of the domiciles by seasonal affinities and reverses them according to the seasons of the southern latitudes. However, he does not appear to give much importance to the matter, and most texts on astrology make no reference to this proposed reversion.³⁶⁸ This is possibly due to the fact that most authors on astrology would rarely deal, if at all, with charts or nativities of the Southern Hemisphere (or even from outside Europe).

Tommaso Campanella appears to be the only author who extends this discussion beyond the level of a brief statement. In his *Astrologicorum Libri VII* (Frankfurt, 1630) he offers an explanation of the concept of the inversion of essential dignities.³⁶⁹ He begins by giving a more developed version of Cardano's statement where he presents the reversal of the dignities for the Southern Hemisphere based on the inversion of the Ptolemy's seasonal reasoning.³⁷⁰ He develops this concept a little further to the equatorial regions proposing an even more radical change. Due to the more particular conditions of the proximity to the Equator he suggests that both Aries and Libra become domiciles of the Sun, and Cancer and Capricorn, those of Saturn.³⁷¹ However, this appears to be a mere theoretical conjecture.

In the following chapters, and applying the same rationale given to the domiciles he reverses the remaining essential dignities. First the exaltations, where the Sun becomes exalted in Libra (instead of Aries), the Moon in Scorpio (the opposite of Taurus), Saturn in Aries (opposite of Libra), Jupiter in Capricorn, Mars in Cancer, Venus in Virgo and Mercury in

³⁶⁷ Ex hoc tandem sequitur quod in Australi medietate Capricornus erit domus Lunae, & Aquarius Solis, Piscis & Sagittarius Mercurij, Aries & Scorpio Veneris, Taurus & Libra Martis, Gemini & Virgo Iovis, Cancer & Leo Saturni. Gerolamo Cardano, *In Cl. Ptolomae de astrorum iudiciis aut (ut vulgo appellant) Quadripartitae constructiones Lib. IIII commentaria ab autore postremum castigata, & locupletata* (Basel: Henric Petrina, 1578), 185.

³⁶⁸ An exception is the later author, Placido de Titi (1603–1668), who also makes a brief reference to this matter, agreeing that there should be another disposition of the planetary dignities in the austral regions, but offers no practical application (& concedendum est, quod in Regionibus Australibus alio modo disponantur Planetarum dignitates). Placido de Titi, *Physiomatica, Siue Coelestis Philosophia Naturalibus Hucusque de Sideratis Ostenta Principiis* (Milano: Franciscus Vigoni, 1675), 217 (Book II, Chapter XI).

³⁶⁹ Campanella, *Astrologicorum Libri VII. In quibus Astrologia omni superstitione arabum, & iudaeorum eliminata physiologicè tractatur, secundum S. Scripturas, & doctrinam S. Thomae, & Alberti, & summorum theologorum; Ita ut absque suspitione mala in ecclesia dei multa cum utilitate legi possint*, 35–42.

³⁷⁰ His autem, qui habitant ultra aequatorem ad polum spectantes austrinum nobiscum aequidistantes ab aequatore, domus Planetarum contrario se habent situ. Quia enim Luna illis propinquissima est in [Capricorno], poteritque agit in corpora ibi inferiora, domus [Capricorni] est Lunae: Solis verò Aquarius: quoniam licet propinquior in [Capricorno], tamen in [Aquario] vis eius roboratur ex patientis impressione iam facta: quod Luna non facit, quoniam velox est, Sol autem immoratur in uno signo 30. dies. Igitur quoniam Saturnus in [Capricorno] & [Aquario] minus ibi valet, quoniam à Luminaribus domos illae erga sua inferiora roboratae sunt, non autem erga nostra: propterea [Cancer] & [Leonis] sunt Saturni domus Australibus populis. Igitur Mercurii erunt Sagittarius & Piscis: Veneris, Scorpius & Aries: Martis, Libra & Taurus: Iovis, Virgo & Gemini: eisdem sanè rationibus conversis, quae supra. Campanella, 35.

³⁷¹ Campanella, 36.

Pisces, ‘as the first argument taught’ (‘ut ratio prima docebat’). The triplicities follow with a more drastic change in the elemental qualities of the signs. Thus the fiery triangle, given to the Sun and Jupiter, becomes Libra, Aquarius and Gemini (instead of Aries, Leo and Sagittarius); Scorpio, Pisces and Cancer become the earthy triangle (replacing Taurus, Virgo and Capricorn) to which the Moon and Venus are assigned; the airy triplicity is composed of Sagittarius, Aries and Leo (instead of Gemini, Libra and Aquarius) and are given to Saturn and Mercury; and Capricorn, Taurus and Virgo the watery triangle (traditionally Cancer, Scorpio and Pisces), associated with Mars with the participation of Venus and the Moon. Although perfectly logical according to the seasonal precept, this redistribution of the elemental qualities of the signs would have profound implications on astrological judgements, which Campanella chooses to omit: all medical, meteorological and behavioural interpretations based on the signs would be reversed. Finally, the system of the terms, to which Campanella gives little importance, is also inverted by assigning the regular ‘northern’ terms to the opposite signs in the Southern Hemisphere.

Despite his more extensive presentation of the concept, Campanella seems only to be offering a theoretical construct, giving no examples of practical application, nor developing further the major implications of the change in the elemental attributes of the signs.

The inversion theory apparently had no impact on the astrological practice in the New World, as evidence shows that astrologers kept using the same rules of interpretation, with only minor adjustments to the climate conditions, particularly when concerning medical applications. One of the best examples of this is the *magnum opus* of Juan de Figueroa (1583-1665), a major text on medical astrology intituled *Opusculo de astrología en medicina* (Lima, 1660).³⁷² Based in his experience as an astrologer in the New World, Figueroa concluded that traditional astrological doctrine is valid in the Southern Hemisphere. Thus, at the end of his presentation of the system of essential dignities he respectfully disagrees with Campanella, and proposes a different approach to the matter of seasonal differences:

³⁷² Juan de Figueroa, *Opusculo de astrologia en medicina, y de los terminos, y partes de la astronomia necessarias para el uso della* (Lima, 1660). A modern edition of this text can be found in Margarita Suárez Espinosa, *Astros, humores y cometas. Las obras de Juan Jerónimo Navarro, Joan de Figueroa y Francisco Ruis Lozano (Lima, 1645-1665)* (Lima: Pontificia Universidad Católica del Perú, Fondo Editorial, 2019). Juan de Figueroa was born in Granada. He was a *familiar* of the Inquisition, was head (*regidor*) of the mint of Lima and Potosí, also serving in the Lima town council and as mayor. On Figueroa see Claudia Brosseder, ‘Reading the Peruvian Skies’, in *A Companion to Astrology in the Renaissance*, ed. Brendan Maurice Dooley (Leiden: Brill, 2014), 406–7; and for his bio see Guillermo Lohmann Villena, *Los regidores perpetuos del Cabildo de Lima (1535-1821): crónica y estudio de un grupo de gestión* (Sevilla: Diputación Provincial de Sevilla, 1983), 130–33. For a study of the *Opusculo* see Lanuza Navarro, ‘Astrología, Ciencia y Sociedad En La España de Los Austrias’, 388–96.

Father Campanella finds it difficult if the dignities of the planets in the Antarctic are one and the same as those in the Arctic, and he seems to be inclined to demonstrate that they are the opposite: and the reason he gives is to say that the Sun exalting in Aries, is the beginning of Spring in Europe, and that when the Sun has this beginning in America, being in Libra, its exaltation should be switched, and consequently all other dignities, being in no doubt that by the effects we come to know the causes and other reasons; however, being such a learned man, he recognises that he speaks only by reports and refers to experience. This [experience] says that the essential dignities of the planets do not change, although they can be altered accidentally, and that Aries being the exaltation of the Sun, Leo its house, and its triplicity the Fiery, is due to natural convenience, and the appropriation that it has with these signs, not because it is in the beginning of Aries in the Spring, nor are changes of its effects in other regions flaws of the Sun or of the signs, but the disparity of the regions. Which does not prevent that when the acting causes are the same, they will produce in all parts [of the World] the same things.³⁷³

Then, explaining the different weather and seasons in the various regions of the South he concludes that the celestial influences can be changed by the material circumstances of the earthly regions, but they do not modify their essential qualities; therefore, the dignities remain the same for both hemispheres:

... it is without a doubt that the indisposition of the elemented thing can impede and divert the celestial influences, which, without losing or changing their qualities, operate according to the disposition and concurrence of the Elements, while the planets always keep their dignities in both hemispheres.³⁷⁴

What Figueroa is proposing is rather radical in terms of the traditional explanation of the astrological system: a change in the Ptolemaic premise regarding the explanation of the essential dignities. Instead of a seasonal based affinity as put forth by Ptolemy, the association of the planets with the signs is based on an ‘natural convenience, and appropriation’ of the planet with the sign. In this form the seasonal variations in the different regions of the globe would not have an impact on superior causes such as the planets and the signs. By separating the system of planetary essential dignities from the seasonal cycle, Figueroa is making it adequate for universal use. When it comes to seasons, he further consolidates the universality

³⁷³ Dificulta el Padre Campanella si las dignidades de los Planetas en este Antartico, son unas mesmas que en el Artico; y parece que se inclina a demostrar, que son las contrarias: y la razon que dá, es dezir, que el Sol se exalta en Aries, principio del Verano en Europa, y que teniendo el Sol este principio en la America, estando en Libra, se deve trocar la exaltacion, y consiguientemente las demas dignidades: no siendo de dudas, que por los efectos venimos en conocimiento de las causas, y otras razones: si bien como tan docto, reconoce que solo habla por noticias, y remite a la experiencia. A que se dize, que las dignidades essenciales de los planetas no se mudam, aunque por algunos accidentes se alteram, y que el exaltarse el Sol en Aries, ser su casa Leon, y su triplicidad la Ignea, es por natural conveniencia, y annexion que tiene con estos signos, no por que sea, o no el principio del Verano in Aries, ni el variar en distintas Regiones sus efectos, son defectos del Sol, ni de los Signos, sino disparidad de las Regiones: que no obsta que las causas agentes sean unas, para producir en todas partes unas mesmas cosas. Figueroa, *Opusculo de astrologia en medicina, y de los terminos, y partes de la astronomia necessarias para el uso della*, fols 13v–14r.

³⁷⁴ ... con que no es de dudas que la indisposición de lo elementado puede impedir, y extraviar las influencias celestes, las quales sin perder ni transmutar sus qualidades, obran segun la disposicion, y concurso de los Elementos, obteniendo siempre los Planetas sus dignidades en ambos Emisferios. Figueroa, fol. 14r.

of the astrological system, stating that the seasonal qualities are the same in all parts of the globe, varying only in intensity from place to place:

Hence it is plainly verified that the complexions, established by each of the four quarters of the year, are of the same qualities generally in all regions of the universe, more or less intense in some than in others; and consequently, also the doctrines of the physicians and astrologers that wrote on the influences and the object ...³⁷⁵

Thus, the traditional temperamental qualities apply to both hemispheres, albeit at opposite points of the yearly cycle. Spring will always be hot and moist and sanguine, the summer, hot and dry, and choleric, autumn, cold and dry, and melancholic, and winter, cold and moist, and phlegmatic; all this independently of the position of the Sun in the zodiac. The universality of this fundamental premise of the astrological system reasserts the validity of the rules applied by physicians and astrologers alike for the Southern Hemisphere.

Another author who strongly disagreed with this theory of reversion was Jean-Baptiste Morin de Villefranche (1583-1656), the French astrologer known among other things for his vehement opposition to heliocentrism. In his major work, the *Astrologia Gallica principiis & rationibus propriis stabilita atque in XXVI libros distributa* (The Hague, 1661) he denounces the error of Cardano and especially Campanella, ‘the great perverter of the sciences’ (‘magnus scientiarum depravator’), dedicating the first chapter of book fifteenth to this discussion.³⁷⁶ He highlights the error of Ptolemy, who assuming the Southern Hemisphere to be uninhabited, did not envisage a universal astrology, but only one particular to Europe, Asia and Africa. He dismisses Cardano’s opinion and accuses Campanella of being inconsistent in his treatment of astrological doctrine and thus not following his own assumptions regarding the Austral hemisphere. He presents three charts of people born in south latitudes to prove that no reversion is needed for astrological interpretation. However, he commits several errors in the calculation of the charts for the southern latitudes, and as with Campanella, his discussions on the Southern Hemisphere are mostly based on his own theoretical conjectures rather than on actual practice. In this regard Figueroa had the advantage of the actual experience. It is not clear if Figueroa was aware of Morin’s opinions on this matter; he makes no reference to him in the *Opusculo*. At first sight it seems unlikely, since *Astrologia Gallica* was only published in 1661, a year

³⁷⁵ De que llanamente consta, que las complexiones, que en cada una de las quatro quartas tiene el año constituidas, son de unas mismas qualidades generalmente en todas las regiones del universo, mas, o menos intensas en unas, que en otras: y por consecuencia lo son las dotrinas de los Medicos, y Astrologos, que escrivieron del influxo, y el objecto. Figueroa, fol. 114r.

³⁷⁶ Jean-Baptiste Morin, *Astrologia gallica principiis & rationibus propriis stabilita, atque in XXVI. libros distributa: Non solum astrologiae judicariae studiosis, sed etiam philosophia, medicis, & theologis omnibus per necessaria: quippe multa complectens eximia ad scientias illas spectantia* (The Hague: Ex typographia Adriani Vlacq, 1661). A modern translation of this section can be found in Morin, *Astrologia Gallica Books 13, 14, 15, 19*.

after the *Opusculo* which was written around 1655, only one year before Morin's death. However, *Astrologia Gallica* was not the first of Morin's publications to address the matter of astrology in the Southern Hemisphere. In 1628 he published a small pamphlet, *Ad australes et boreales astrologos pro astrologia restituenda epistolae* (Paris, 1628), containing a letter dated from 23 September 1626 to a certain F. L. M. a 'great expert in celestial physics' ('physicae caelestis peritissimum') in Lima, kingdom of Peru.³⁷⁷ In this letter Morin already discusses the case of the Southern Hemisphere and the universality of astrology, proposing similar arguments to those presented by Figueroa later on. Although there is no evidence of a direct connection, it becomes clear that the issue of astrological practice in southern latitudes was being actively discussed between astrologers working in both hemispheres.

Jesuits and astrology under southern skies

The Jesuits also played a part in these discussions. One of the earliest contributions is the book *Historia natural y moral de las Indias* (Madrid, 1608) by José de Acosta (c.1539-1600), a missionary who travelled in Panama, Perú and Mexico. Albeit his text is not astrological in nature, Acosta briefly discusses the southern stars, which he considered to be less bright and fewer in number than those in the Northern Hemisphere:

Those who navigate these parts usually write great things of this sky, as for example that it is very bright and that it has many and bigger stars. In truth, things that are far off are painted highly enlarged. On the contrary, to me it seems, and I have for certain, that on the other side of the North there are a greater number of stars and of illustrious greatness, Nor do I see here stars that exceed the horn [Great Bear] or the wagon [Little Bear]. Though it is true that the cross of this part [Southern Cross] is a beautiful and an admirable sight.³⁷⁸

On the contrary, the aforementioned Alonso de Ovalle, a Jesuit of Creole origin, in his book *Histórica relación del reyno de Chile* (Rome, 1646) offered a listing of the southern constellations, and considered the stars in the southern hemisphere to be brighter, more numerous and more benign in their influence. Another example is that of Bernabé Cobo (1582-1657), author of significant works on the New World and considered one of the major sources on the natural history and civilizations of Spanish America. In his main work, the *Historia del*

³⁷⁷ Jean-Baptiste Morin, *Ad australes et boreales astrologos pro astrologia restituenda epistolae* (Paris: Ioanner Moreau, 1628), 3–13.

³⁷⁸ Los que de nuevo navegan estas partes suelen escribir cosas grandes deste cielo, es a saber que es muy resplandeciente, y que tiene muchas y muy grandes estrellas. En efeto las cosas de lexos se pintan muy engrandecidas. Pero a mi al revés me parece y tengo por llano, que a la otra vāda del Norte, ay mas numero de estrellas y de mas ilustre grandeza. Ni veo aca estrellas que excedan ala Bozina y al Carro. Bien es verdad que el cruzero de aca es hermoso y de vista admirable. Joseph de Acosta, *Historia Natural y Moral de Las Indias. En Que Se Tratam Las Cosas Notables Del Cielo, y Elementos, Metales, Plantas, y Animales Dellas; y Los Ritos, y Ceremonias, Leyes, y Gobierno, y Guerras de Los Indios* (Madrid: Alonso Martin, 1608), 25–26.

Nuevo Mundo (Seville 1890-1893), finished in 1657 but published only in the late nineteenth century, Cobo equally claimed greater luminosity for the stars in the Southern Hemisphere.³⁷⁹ He also discusses the matter of the inversion of the seasons and their qualities according to astrological doctrine, although not in such a complex way as did the abovementioned authors. First, he enumerates the common correspondences to the four seasons:

The astrologers and philosophers give to each of these times two qualities, paring them with the two symbols that Aristotle attributes to each one of the elements, and compare these four times to the four ages of Men, to the four humours of the human body, and to the four elements. Spring they make hot and humid and compare it to childhood and the flowery age of children, of the humours, the blood, and of the elements, Air; To Summer, hot and dry, attributing to it youth, cholera and the element of Fire; to Autumn, cold and dry, similar to the age of maturity, to melancholy and to the element of Earth; to Winter, cold and moist, comparing it to old age, to phlegm and the element Water.³⁸⁰

Before continuing with a detailed description of the seasons of each region, he refers to the difficulty in making these same attributions in South America but offers no solution. Instead, he believes that the association of seasons with the qualities cannot be maintained for the Southern Hemisphere:

... however, in the Southern torrid zone, as well in the rest of this hemisphere these times become inverted, to which in the mid region cannot be attributed the same symbolic qualities as in Europe. Neither can one compare the ages of Man and other things that are in there compared, as will be seen as we make the division of the seasons in this Southern Hemisphere in which is contained this Kingdom of Peru.³⁸¹

As to the inhabitants of the New World, Cobo, like other authors, also considers them to be naturally phlegmatic and thus his general view of them is negative. However, he recognises in them the good qualities of this temperament:

They are all naturally phlegmatic of complexion, and since natural phlegm makes soft and wet the substance of the organs of the body, they have soft and delicate flesh and therefore they tire easily and are not as prone to work as the men of Europe. (...) They have a relentless patience to learn our crafts, which causes them to become such excellent

³⁷⁹ Bernabe Cobo, *Historia Del Nuevo Mundo*, vol. 1, Sociedad de Bibliófilos Andaluces. Primera Serie (Sevilla: Sociedad de Bibliófilos Andaluces, Imp. de E. Rasco, 1890).

³⁸⁰ Los astrólogos y filósofos dan á cada uno destes tiempos dos cualidades, pareándolas con las dos símbolos que atribuye Aristóteles á cada uno de los Elementos, y comparan estos cuatro tiempos á las cuatro edades del hombre, á los cuatro humores del cuerpo humano, y á los cuatro elementos. Al Verano ó Primavera hacen caliente y húmedo y lo comparan á la niñez y edad florida de los mozos; de los humores á la sangre; y de los elementos al Aire; al Estío, caliente y seco, atribúyenlo á la juventud, á la cólera y al elemento del Fuego; al Otoño, frío y seco, semejante á la edad madura, á la melancolía y al elemento de la Tierra; al Invierno, frío y húmedo, compáranlo á la vejez, á la flema y al elemento del Agua. Cobo, 1:127-28.

³⁸¹ ... pero en la Tórrida zona Austral, así como en lo demás deste hemisferio vienen estos tiempos al contrario, á los cuales en esta media región no se les puede atribuir las cualidades símbolos que en Europa. Ni tampoco se pueden comparar á las edades del hombre y demás cosas á que allá se comparan, como se verá haciendo la división de tiempos en este hemisferio Austral, en que se comprehende este reino del Perú. Cobo, 1:128.

artisans as they are, particularly in those crafts in which is required phlegm and ease in order to be learned.³⁸²

None of the works of these authors is specifically astrological in its study of the New World; nevertheless, the fundamental elements of the discussion are present in their texts. However, other Jesuit authors working in the Southern Hemisphere were more astrological in their discussions. Such is the case of Valentin Stansel.

The 'journeys' of Valentin Stansel

A lesser known author, Valentin Stansel (1621-1705), also called Valentin Estancel or Valentin de Castro, was born in Olomouc, Moravia, where he studied in the local Jesuit college. After entering the order in 1637, he studied at the University of Prague, later becoming a professor of philosophy and mathematics. By 1651 he asked to be assigned to missionary work in the Orient and came to Rome where he contacted Athanasius Kircher. His appeals were rejected by the Society and in 1656 he was sent to Portugal and taught in the College of Santo Antão in Lisbon and in the College of Elvas. In 1663 he was sent to Bahia, Brazil, where he remained until the end of his life.³⁸³ Sometime in 1664 he wrote a work titled *Mercurius brasilius, sive de Coeli et soli brasiliensis oeconomia*, in which he discussed the climate, flora, and fauna, as well as the effects of celestial influences in Brazil; unfortunately, it was never published, and the manuscript was apparently lost.³⁸⁴ Especially relevant to the present study is his book *Uranophilus Caelestis Peregrinus sive Mentis Uranicae per Mundum Sidereum Peregrinantis Extases* (Gand, 1685).³⁸⁵ Following the same genre of Kircher's *Iter Coelestium*, in it Stansel narrates the celestial travels of Uranophilus guided by the muses Urania and Geonisbe.³⁸⁶ He discusses the matter of celestial influence on several occasions in the book, as the dialogue between the three characters moves from one topic to another. The most relevant of these

³⁸² Son todos naturalmente flemáticos de complexión; y como la flema natural hace blanda y húmeda la sustancia de los miembros del cuerpo, tienen muy blandas y delicadas carnes, y así, se cansan presto y non son pra tanto trabajo como los hombres de Europa. (...) Tienen una paciencia incansable en aprender nuestros oficios, que es causa de que salgan tan adelantados artífices como salen, particularmente en aquellos oficios en que se requiere flema y reposo para aprenderse. Bernabe Cobo, *Historia Del Nuevo Mundo*, vol. 3, Sociedad de Bibliófilos Andaluces. Primera Serie (Sevilla: Sociedad de Bibliófilos Andaluces, Imp. de E. Rasco, 1892), 22.

³⁸³ For a biography of Stansel, see: Carlos Ziller Camenietzki, 'Esboço Biográfico de Valentin Stansel (1621-1705), Matemático Jesuíta e Missionário Na Bahia', *Ideação*, no. 3 (1999): 159–82; Carlos Ziller Camenietzki, 'The Celestial Pilgrimages of Valentin Stansel (1621-1705), Jesuit Astronomer and Missionary in Brazil', in *The New Science and Jesuit Science: Seventeenth Century Perspectives*, ed. M. Feingold (Dordrecht: Springer, 2003).

³⁸⁴ Camenietzki, 'Esboço Biográfico de Valentin Stansel (1621-1705), Matemático Jesuíta e Missionário Na Bahia', 166–68.

³⁸⁵ Valentin Stansel, *Uranophilus Caelestis Peregrinus Sive Mentis Uranicae per Mundum Sidereum Peregrinantis Extases* (Gand: Apud Heredes Maximiliani Graet, 1685).

³⁸⁶ For a study of this work, see: Camenietzki, 'The Celestial Pilgrimages of Valentin Stansel (1621-1705), Jesuit Astronomer and Missionary in Brazil'; Carlos Ziller Camenietzki, 'Baroque Science between the Old and the New World. Father Kircher and His Colleague Valentin Stansel (1621-1705)', in *Athanasius Kircher: The Last Man Who Knew Everything* (New York: Routledge, 2004), 311–28.

discussions relates to medical astrology.³⁸⁷ This section discusses the extension of the action of celestial bodies over human beings, asserting that this influence is on the body but not on the soul, quoting Augustine. Then the discussion proceeds with medicine and its connection to the celestial influences, and the importance of astrology for medical practice, of which the physician cannot be ignorant.³⁸⁸ Thus, Urania presents several astrological canons on the fundamental principles of medical astrology. Beginning with the associations between the signs and the parts of the body, the canons then list the best sign positions of the Moon for bleeding according to the person's temperament and the usages of the phases of the moon, followed by the prescription of various types of medicines (emetics, purgatives, etc.), again according to the position of the Moon in the signs. The information disclosed is not advanced astrology, only the foundations usually found in the medical almanacs, but still, Stansel highlights its importance for medicine. Thus, he appears to clearly advocate the use of astrology for medical purposes. As the study of nativities is also a part of medical astrology and he refers to individual temperaments, it is not unreasonable to assume that he had some practical knowledge of the subject. At the very end of this discussion, the muse Geonisbe asks a very significant question:

The physician had taken himself to the city, when Geonisbe asked Urania about something of which she was perplexed and in doubt. She said: How can the force of the heavenly bodies and the bad influence of the stars be known to us who live in America? Is there the same force of the stars in America as in Europe, and on the Asians and the Africans? And who, I would love to know, teaches that force after so many periods of years and centuries, and (what is more difficult) to those who are located under a different inclination of the Sky, than [the one] the Chaldeans or the Arabs once observed? And, after so many years, are we ignorant of how big a difference results from the slanting of the parts of the sky and the curvature of the World? And then, if one can find out if those stars of which you have spoken, make somewhere pleasant weather and somewhere else violent storms; if for [people in] the North mostly winds turbulent with clouds and frost seize the day, while in Brazil the Etesian and the Favonius [winds] blow (serene air and mostly empty of clouds), how can anything certain be found out from these by the Brazilians, or anything be learnt about diseases? If we see that some things are produced by the stars in the Chaldeans and the Arabs and other things in the Sarmatians and Gets, and again other things in our Brazilians, do we not correctly argue that the influence of the stars is not the same under this and another curvature [latitude] of the sky? And if this is not the same, how can a Brazilian or American physician determine anything from the stars, or consult them? If he cannot, it becomes clear that your canons rest on a dubious foundation, and what comes out from there; and we do not declare correctly the

³⁸⁷ Stansel, *Uranophilus Caelestis Peregrinus Sive Mentis Uranicae per Mundum Sidereum Peregrinantis Extases*, 19–21.

³⁸⁸ Unde, ex re sane, Hippocrates vester vetuit medicamenta fortia ac vehmentia adhiberi aegrotis, aequinoctiorum vel solstitiorum tempore; in luminarium coitu, oppositionibus; in exortu Stellarum calidarum, quales esse censeo, Syrium, Procyonem, Herculem, Pegasus, Pallilitum, Capellam, & similes: nisi fortè vis morbi & periculum moram non ferant. Quanti, quòd ista ignorant vel negligunt, dum aegrotis putant se consulere, medicinis intempestivis aegros occidunt? Hinc jurè Ptolomaeus, inter violentae mortis genera recenset, manibus medicorum imperitorum occidi. Quid enim aliud sunt medicamenta, intempestivè aegrotis propinata, quam toxica quaedam, quibus homines pecantur? Itaque, mi Aesculapi, ne porrò aliorum more, ut talpa, caecutias, neve amplius homicida sis, sequentes canones diligenter memoriae commendabis. Stansel, 19.

physicians are accused of homicide, if they do not heal diseases at the right or the wrong time.³⁸⁹

Here, in the query of the muse, Stansel touches on the crucial point of astrological practice in the New World: the qualities and natures of the components of astrology in the Southern Hemisphere. Once more the discussion focuses on the influence of new stars and constellations, and the different seasonal and climatic attributes. As seen above, South American physicians and astrologers, such as Figueroa, kept using the traditional system and expressed their disagreement with the changes proposed. Stansel does not offer any answers to Geonisbe's questions, choosing to divert the dialogue to other topics. However, it is interesting to note that he expresses the same doubt as any historian of this period does: why had not the matter of celestial influence in southern latitudes been resolved (or at least fully discussed) by the mid-sixteenth century, as so many years had passed since the discovery and colonization of the New World? It is possible that he addressed this matter in his lost work, *Mercurius brasilius*, but here he chose not to do so, and the reasons why remain unclear. The fact that the canons presented in *Uranophilus* are quite standard medical astrological principles could indicate that he, like others in South America, practiced (or endorsed the practice) of the usual astrological doctrines. There are accounts of his medical prognostications given by two Portuguese physicians, João Ferreira Rosa and Domingos Pereira da Gama, showing his aptitude for medicine, and considering the contents in *Uranophilus*, to medical astrology:

...and a mathematician that today gives prestige to Brazil, Father Stansel of the Society of Jesus, has made prognoses of many malignant diseases, to whom should be given assent in this matter for the experience that we have from him in the prognosis he made of the contagion that so many years ago we endured.³⁹⁰

³⁸⁹ Iam Medicus se abstulerat in Urbem, cum Geonisbe, de quibusdam perplexa & dubia, Uraniam interpellavit. Quo pacto, inquit, vis Siderum, aut malignitas Stellarum cognosci à nobis possunt, qui Americam incolimus? An verò eadem vis Astris in America, quae in Europa; eademque in Asiaticos, quae in Africanos? Et quis, amabo, hanc vim, post tot annorum & seculorum periodos, & (quod difficilior) sub alia Caeli, quàm Chaldaei vel Arabes olim observarunt, inclinatione positos, docuit? An verò nescii sumus, quanta, post tot annorum curricula, partium Caeli, ex divergentia & convexionibus mundi, varietas facta sit? Denique si haec ipsa Sidera, de quibus dicebas, alibi tempestatem placidam, alibi violentam & turbidam faciunt; si Borealibus plerumque squallentes nubibus venti & pruinae diem eripiunt, quo tempore Brasilis Etesiae vel Favonii spirant (sereno ut plurimum aëre & à nubibus vacuo) quo pacto certi aliquid ex iis à Brasilis erui poterit, aut de morbis decerni? Si alia in Chaldaeis vel Arabibus, alia in Sarmatis Getisque rursumque, alia in nostris Brasilis, ab Astris effici videmus, an non rectè arguimus, sub alio atque alio Caeli curvamine, non eundem esse Siderum influxum? Quòd si autem non idem est; quo pacto Medicus Brasiliis sive Americanus, ex Astris aliquid statuere, aut ea consulere poterit? Quòd si autem non potest, liquidum sit, tuos illos canones dubio niti fundamento; & quod exinde nascitur, non satis rectè Physicos homicidii reos pronuntiamus, quod vel non in tempore aut intempestive morbis medeantur. Stansel, 20–21.

³⁹⁰ ... e hũ mathematico que hoje ilustra o Brasil, o P. Estanser da Companhia de Ihs., tem feito pronostico de muitas doensas malignas, a quem se deue dar nesta materia asenso pela expiriensia que dele temos, no pronostico que fes do contagio que ha tantos annos sentimos. Quoted in Serafim Leite, *História Da Companhia de Jesus No Brasil*, vol. 8 (Rio de Janeiro: Instituto Nacional do Livro, 1949), 209. The contagion here mentioned regarded what was called 'mal da bicha', that is, yellow fever.



Figure 9.1 – Frontispiece of Valentin Stansel's *Uranophilus Caelestis Peregrinus* (1685).

Stansel believed that God rules the World through the stars, His instruments. Thus, contrary to many of his Jesuit colleagues, who often quote Pico della Mirandola as a main source for the critique of astrological practices, Stansel is quite hostile to his text, which he very colourfully reproves:

Therefore, you shall see, how preposterously and with little solidity Pico della Mirandola stuffed and stitched together twelve volumes with so many arguments, stupidly blabbering and barking against the influence of the stars (who then many others, like monkeys, imitated).³⁹¹

Still, as much as he disapproves of the arguments of the chief criticiser of astrology, he is also very strict and belligerent towards the bad practitioners of the art. So, after addressing Pico's work, he goes on to chastise the bad practitioners that in his view were the reason for Pico's argumentation:

But let us leave Pico alone, the mordacious magpie. Let us concede something to the man or [his] intellect to whom the pseudo-Astrologasters (as I used to call them), or (as some call them) *Genethliaci* gave an opportunity. Who are not educated in any science, and by no reading, or without judgement, shamelessly present themselves as the masters of this celestial storeroom, and with little caution burst forth to forming and casting judgements and horoscopes. They even persevere when, as if hit by cliffs and their fame suffering several shipwrecks, the outcome does not correspond to these. They are deceived by some stupid persuasion, while remaining ignorant of the canons of the art.³⁹²

In this section Stansel is notably defending astrology and its practice as he attacks both those who misuse astrology, giving it a bad name, and the chief-critic of astrology. In the whole discourse of *Uranophilus*, despite any of the critiques and doubts he presents, there is a clear acceptance of celestial influence and its relationship with astrology. Like some of his abovementioned colleagues, Stansel not only shows evidence of a good knowledge of the principles of astrology, but also of being a practitioner at least in the fields of medicine, meteorology and the interpretation of comets.

The observation of comets is one of Stansel's contributions to astronomy and perhaps the one by which he is best known. His observations of the comets of 1664 and 1665 circulated in Europe and were later published in the work *Legatus Uranicus ex Orbe novo in Veterem, hoc est Observationes Americanae Cometarum factae, conscriptae ac in Europam missae* (Prague,

³⁹¹ Hinc videas, quam praepostere & parum solide Picus Mirandula, duodecim Voluminibus, tanta consarcinavit vel confarcinavit argumenta (quem deinde plures alii, ut Simiae, imitati sunt) stolidè contra vim Astrorum deblaterantes vel latrantes. Stansel, *Uranophilus Caelestis Peregrinus Sive Mentis Uranicae per Mundum Sidereum Peregrinantis Extases*, 181.

³⁹² Sed mittamus Picum, vel Picam mordacem: concedamus aliquid homini vel acumini, cui occasionem dederint, Pseudo – (ut dicebam) – Astrologastri, quidam inquam Genethliaci; qui nullâ scientiâ instructi, nulloque delectu, vel sine judicio, temerè in caelestem hunc Promum-condum se ingerunt, & ad judicia horoscoposque formadandos parum cauti prorumpunt: quibus deinde, ceu cautibus impacti, plerumque naufragium famae, non respondente eventu, patiuntur: stultâ quadam persuasione, artis canones ingnorantes, decepti. Stansel, 181.

1683), to which were added data from other observations made in Europe.³⁹³ Also, his remarks on the comet of 1668 were first published in the *Giornale dei Litterati* of September 1673, and later translated into English by Christian Huyghens and published in the *Philosophical Transactions* 9 (1674); this data was later used by Newton in the *Principia*. All these publications contain only astronomical data, but in *Uranophilus* he debates the effects of comets. Stansel, like many astronomers of the time, believed them to be exhalations of the planets and, more importantly, portents and divine messengers. He even gives examples of past comets, such as the comet of 13 December 1664, which passing by the constellations of Corvus and Hydra, signified sickness in the slaves.³⁹⁴ This reference in *Uranophilus* bears resemblance to a manuscript on the judgement of the comet of 1689, attributed to Stansel, *Descurço Astronomico sobre o estupendo e fatal Cometta ou Nuncio pella Divina providencia enviado aos Mortaes. O qual foy visto a primeira vez a 6 de Dezembro do Anno de 1689 ao romper da Aurora, neste nosso Horizonte Oriental Pernambuco na altura Austral 8 gr. no Signo de Escorpião*. (Astronomical discourse on the admirable and fatal comet or, messenger of the Divine Providence sent to mortals. Which was seen for the first time on 6 December of the year of 1689 at the break of dawn in our oriental horizon of Pernambuco, at the southern height of 8 degrees in the sign of Scorpio).³⁹⁵ In this text he refers to the comet as being generated by the recent conjunction of Saturn and the Sun in Scorpio, the house of Mars. The influence of Saturn, a malefic and cold planet, despite being moderated by the beneficial and warm nature of the Sun, suggested a destructive nature for the Comet. The colour of lead that it gradually assumed was another evidence of its malefic Saturnian nature. In Stansel's views this is furthered by the passage of the comet by three constellations representing monsters:

I asked my Urania as I used to, for she so greatly pierces the celestial secrets, of what condition and nature were those monsters where the comet made its course. The monsters were three: the first, the scorpion, the second, the wolf, the third, the centaur; constellations whose names are explained by astronomers and poets. These monsters, Urania replied to me, are emblems or hieroglyphs: the first, which is the scorpion, of venomous contagion; the wolf, of sterility and hunger; the centaur, of war. Against such

³⁹³ Valentin Stansel, *Legatus Uranicus ex Orbe novo in Veterem, hoc est Observationes Americanae Cometarum factae, conscriptae ac in Europam missae* (Prague: Universitatis Carolo Ferdinano, 1683).

³⁹⁴ Stansel, *Uranophilus Caelestis Peregrinus Sive Mentis Uranicae per Mundum Sidereum Peregrinantis Extases*, 44–45.

³⁹⁵ Biblioteca Nacional de Portugal, PBA 484.22, fols. 170r-177v, and published in Vicente Ferrer de Barros Wanderley de Araujo, 'Discurso Astronomico Sobre o Cometa Aparecido En Pernambuco No Dia 6 Dezembro de 1689', *Revista Do Instituto Archeologico e Geografico Pernambucano*, no. 16 (1914): 63–73. The attribution to Stansel is made by Leite, *História Da Companhia de Jesus No Brasil*, 1949, 8:208–12. Also noted by Abraão de Moraes in Fernando de Azevedo, ed., *As ciências no Brasil* (São Paulo: Edições Melhoramentos, 1950), chap. 2. On this manuscript see Juan Casanovas and Philip C. Keenan, 'The Observations of Comets by Valentine Stansel, a Seventeenth Century Missionary in Brazil', *Archivum Historicum Societatis Iesu* LXII, no. 123 (1993): 328–30 and; Carlos Ziller Camenietzki, 'O cometa, o pregador e o cientista - Antônio Vieira e Valentin Stansel observam o céu da Bahia no século XVII', *Revista da SBHC*, no. 14 (1995): 43–50. As Casanovas and Keenan point out, the various references to *Urania* and to *Uranophilus* throughout the text, as well as the type of discourse, consolidate the attribution of this text to Stansel.

monsters, submerged in so much darkness, the assistance of this comet was necessary so that they were better uncovered to the World.³⁹⁶

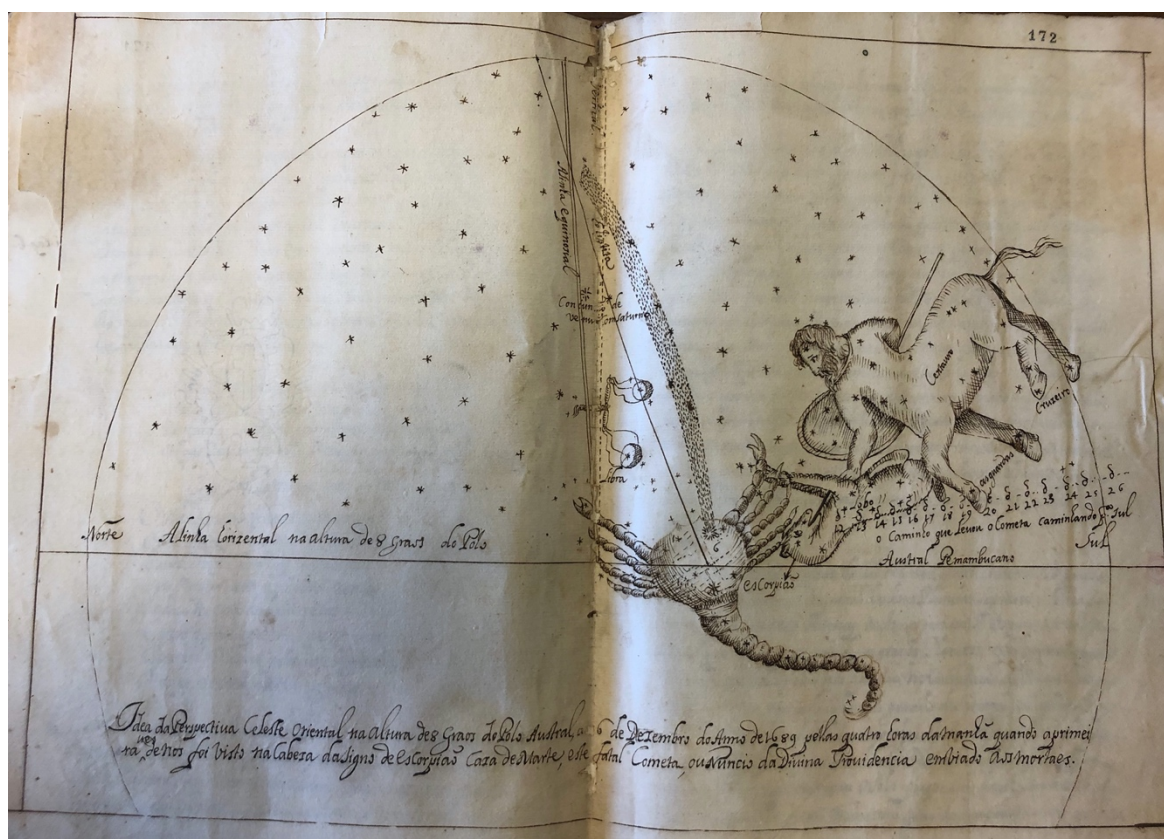


Figure 9.2 – Illustration from Stansel's *Descurço Astronomico* (BNP, P 484.22, fols. 171v-172r).

In his judgement, Stansel combines the common astrological interpretation of comets with a more allegorical approach. Following the thinking of his master Kircher, he considers the constellations as being symbols representing in this case sickness, sterility, hunger, and war, due to the inherent symbolic meaning of the figures they represent. To the Aristotelian and Ptolemaic tradition of associating the constellations to temperaments (and to the planets which convey these temperaments), Stansel adds an allegorical interpretation derived from the semiotic and imagistic content derived from the constellation. As mentioned before, this style of interpretation was not completely alien to the astrological doctrine, since many of the constellations and stars derived their signification from the stories and the figures patterned in them. Nonetheless, this line of reasoning had been for centuries applied within the framework of the Aristotelian rationale of astrology; it was perhaps applied more frequently in the

³⁹⁶ ... perguntei como costume à minha urania pois tanto penetra os Segredos Celestes; de que condição, e natureza erão aquelles monstros, poronde o cometa fez o seu curso. Três erão os Monstros; o 1.º o Escorpião, o 2.º o lobo, o 3.º o Centauro: As quais constellações asim com estes nomes se explicão pellos Astronomos, e Poettas: Estes monstros me respondeu Urania são huns Emblemas ou hieroglíficos; o 1.º que he o Escorpião, do contagio venenoso; o lobo da esterilidade, e fome; o Centauro da guerra: Aos quais monstros para que melhor se descobrissem ao Mundo sobmergido em tantas trevas, foy necessaria a asistencia deste Cometa (PBA 484.22, fol. 176v).

construction of astrological talismans, an art that many authors considered another branch of astrology, but that in this period was under strict scrutiny by the Inquisition. With the Neoplatonic revival, and its infusion within astrology and natural magic, this type of symbolic association seems to have gained a new impulse in the seventeenth century, creating a trend of figurative interpretation within astrology. This was particularly suited for the heavens of the new world, as their constellations and asterisms had no equivalent in the tradition and needed to be interpreted.

Kino and the comet

Comets were always a matter of astronomical and astrological discussion until the late seventeenth century. The Jesuit missionary, explorer, astronomer and geographer, Eusebio Francisco Kino (1645-1711) is another example. Born in Segno, Predaia (present day Italy), he joined the Jesuits in 1665 and wanted to go to the Orient, but like Stansel he was sent to the New World instead. When he arrived for his mission, he published in Mexico his observations of the comet of 1680-81 made in Cádiz while waiting for his ship to New Spain, the *Exposition astronomica de el cometa* (Mexico, 1681).³⁹⁷ Though the work is mainly astronomical, Kino dedicates chapter ten to the discussion of the prognostication of the comet's effects. Here he discusses at length comets as signs of events, referring to various religious authorities and to astronomers, among them his fellow Jesuits, Riccioli, Kircher and Scheiner. As to the astrological judgement, although he follows the standard precepts for comet interpretation, Kino is not as detailed as Stansel, making only very general statements. Inter alia he considers that its large size and duration will be more inclined to signify disasters in general, such as sterility, floods, and earthquakes, rather than the deaths of princes, and that its effects should extend in years the number of months the comet was visible:

Though this comet, being so large and having such a lengthy duration, seems to signify more universal disasters, such as sterility, scarcity of supplies, storms, inundations, and in some parts earthquakes, excess of stormy winds, cold as well as warm [weather], notable alterations of humours in human bodies, and as a consequence (although without prejudice to human free will) quarrels and wars between some nations. It also presages, as it seems, illness, and in truth very contagious [illnesses], and what usually originates from this is the death of numerous mortals; whose calamitous effects will all last as long as, or will reach in years, the length of days or months the comet has lasted.³⁹⁸

³⁹⁷ Eusebio Francisco Kino, *Exposition Astronomica de El Cometa, Que El Año de 1680, Por Los Meses de Noviembre, y Diziembre, y Este Año de 1681, Por Los Meses de Enero y Febrero, Se Ha Visto En Todo El Mundo, y Le Ha Observado En La Ciudad de Cadiz* (Mexico: Francisco Rodriguez Lupercio, 1681).

³⁹⁸ Pero este Cometa siendo tan grande, y aviendo durado tanto, parece, que significa mas universales desgracias, como son esterilidades, penuria de bastimentos, tempestades, inundaciones, y en algunas partes temblores de tierra, tormentosos vientos exorbitantes, así frios, como calores, notables alteraciones de humores en los cuerpos humanos, y como

Despite the high praises Kino's work received from the Mexican savant Juana Inés de la Cruz (1648-1695), his defence of the effects of comets was highly criticized by the intellectual Carlos de Sigüenza y Góngora (1645-1700), leading to a lengthy and harsh debate between the two.³⁹⁹

The Jesuits as references

The role of the Jesuits and their knowledge of astrology in the context of the New World can also be seen in a more indirect way as references in other books. An example is the abovementioned António de la Calancha who also discussed the astrological influences of the southern constellations and proposed planetary associations to cities and regions in Peru in his *Coronica moralizada del orden de San Agustin en el Peru* (Barcelona, 1639).⁴⁰⁰ This book is an excellent testimony of the ongoing debates among the intellectuals on how to fit the traditional cosmological concepts to the New World. While he is not a Jesuit but an Augustinian, he makes two interesting references to two Jesuit authors in the discussion of the city of Lima and its astrological correspondences (Book I, Chapter 38). The first is Juan Bautista de Poza (1588-1659) author of the controversial *Elucidarium Deiparae* (Lyon, 1627), whom De la Calancha praises for his astrological knowledge.⁴⁰¹ In this book De Poza makes several astrological statements regarding the birth and life of the Holy Virgin; this will be addressed further on. The second Jesuit author is Christopher Clavius who is referred to as an authority on the undeniability of the influence of the celestial bodies:

... although nothing can deny that the celestial bodies have active influences that incline natural things to various conditions, and if one reads Francesco Giuntini, Doctor of Theology, Father Clavius of the Society of Jesus, and Leopold of Austria, [all] great mathematicians, scientific proofs and continued experiences [will] show that the influence of the stars conforms with [the laying of] the first stone of buildings, [and that] the signs and planets influence various effects ...⁴⁰²

configuientemente (pero sin perjuyzio de el humano libre alvedrio) discordias, y guerras entre algunas naciones. Presagia tambien á lo que parece enfermedades, y de verdad no poco contagiosas, y lo que de aqui suele originarse, qual es la muerte de innumerables mortales, cuyos calamitosos efectos, todos tanto mas durarán, ò alcançaràn de años, quanto por mas dias, ò meses duró el Cometa. Kino, fols 25r-26v.

³⁹⁹ On this topic see Ana More, 'Cosmopolitanism and Scientific Reason in New Spain: Carlos de Sigüenza y Góngora and the Dispute over the 1680 Comet', in *Science in the Spanish and Portuguese Empires, 1500-1800*, ed. Daniela Bleichmar et al. (Stanford: Stanford University Press, 2008), 115-31.

⁴⁰⁰ António de la Calancha, *Coronica Moralizada Del Orden de San Agustin En El Peru, Con Sucesos Egenplares Vistos En Esta Monarquia* (Barcelona: Pedro Lacavalleria, 1639).

⁴⁰¹ Juan Bautista Poza, *Elucidarium Deiparae* (Lyon: Andreae & Jacobi Prost, 1627).

⁴⁰² ... si bien nadie puede negar, que tienen los astros activas influências que inclinã las naturalezas à varias condiciones, i si se leen à Frâncisco Iuntino Dotor Teologo, al Padre Clavio de la Conpañia de Iesus i à Leopoldo de Austria, grandes matemáticos, se veràn científicas pruebas i cõtinuadas experiencias de que conforman las influencias de los astros cõ la primera piedra de los edificios, influyêndo los Signos i Planetas varios efetos ... de la Calancha, *Coronica Moralizada Del Orden de San Agustin En El Peru, Con Sucesos Egenplares Vistos En Esta Monarquia*, 239.

Clavius is mentioned amidst and on equal standing with to two famous astrological authorities on the matter of influences and particularly in regard to the astrology of the foundation of cities. The latter topic would not be strange to either Giuntini or Leopold,⁴⁰³ but the reference to Clavius is somewhat odd since he did not publish any practical astrological material, as discussed before. This can either mean that somehow Clavius was accounted as an authority in astrology, or he is being mentioned due to his respectability as a mathematician. In any case Clavius's association with astrology could be further evidence that in the mind of these authors he supported astrological practice.

The Jesuits as teachers

The Jesuit contribution to this ongoing discussion was not limited to the publication medium. Since they were one of the main educational forces in South America, their teachings appear to have included, beyond the common concept of celestial influence, the astrological theories and practices that went with it. This is a matter that will require future research but considering the number of references to the direct or indirect involvement of Jesuits with astrological practices, it is not unlikely that the subject was part of their curriculum. This could have been done by including astrology directly in their courses or through private teaching, much in the same way that was practiced in the college of Santo Antão in Lisbon, which will be discussed in Part Two.

The other indication of astrological teachings comes from those who had been educated in Jesuit schools. The education provided by the Jesuits to navigators, cartographers and astronomers in New Spain hints at the possible existence of a basic education on astrology similar to that existing in Santo Antão. For example, the well-known cosmographer Francisco Ruiz Lozano (1607-1677), received his basic education with the Jesuits in Lima, and then studied in the university under the abovementioned Diego Rodríguez, who was not a stranger to astrology and its applications.⁴⁰⁴ In his account of the comet of 1664, Ruiz Lozano includes, in the same fashion as Stansel and Kino, its astrological interpretation. He considered the comet to be of the nature of Mars and to signify earthquakes, floods and rebellion.⁴⁰⁵ He also promoted

⁴⁰³ On Giuntini see, Jean-Patrice Boudet, 'From Baghdad to Civitas Solis: Horoscopes of Foundations of Cities', in *From Masha' Allah to Kepler: Theory and Practice in Medieval and Renaissance Astrology*, ed. Charles Burnett and Dorian Gieseler Greenbaum (Ceredigion, Wales: Sophia Centre Press, 2015), 73–76.

⁴⁰⁴ On the life and work of Ruiz Lozano see Jorge Ortiz Sotelo, 'Francisco Ruiz Lozano, general de la Mar del Sur, cosmógrafo mayor y primer catedrático de matemáticas de Lima (1607-1677)', *Historia y Cultura*, no. 21–22 (1992): 139–56. On his relationship with astrology see Brosseder, 'Reading the Peruvian Skies', 410–12.

⁴⁰⁵ Francisco Ruiz Lozano, *Tratado de Cometas, Observacion, y Juicio Del Que Se Vio En Esta Ciudad de Los Reyes, y Generalmente En Todo El Mundo, Por Los Fines Del Año de 1664 y Principios Deste de 1665* (Lima: [s.n.], 1665). A modern edition of this text is published in Espinosa, *Astros, humores y cometas*.

the publishing of almanacs containing, alongside the astronomical and calendar data, elements of natural astrology. This work was continued by his successor the Jesuit Ramón Koenig (1623-1709).⁴⁰⁶ It is possible that further studies on the Jesuit teaching institutions of South America might provide further examples of Jesuit teaching and practice of astrology.

Catholic constellations: astrology in religious discourse

Astrology was not only confined to its more mundane applications such as medicine and meteorology. It was also used as a rhetorical device and to consolidate the argumentation in religious discourse and preaching. Additionally, the constellations of the Southern Hemisphere and the heavenly phenomena were adapted to become allegories of Christianity itself. Although this is not specific either to Jesuit preachers or to South America, there are a number of examples combining both the geographical location and members of the Society.

The sermons of António Vieira

An example of this is in the controversial Jesuit preacher António Vieira (1608-1697). Born in Lisbon, he moved with his family to Brazil in 1614. He studied in the Jesuit college of Bahia and joined the Society in 1625. Vieira was a complex figure and was involved in many theological and political disputes throughout his life.⁴⁰⁷ His defence of the Indians and Jews caused him problems with the Inquisition, but nonetheless, he served as ambassador on several occasions, and became an advisor to King João IV after the Restoration of the Portuguese Monarchy in 1640. Vieira was famous for his oratorical skills and left several published texts, sermons and letters. Some of his works are on the subject of prophecy and on the millenarian views that Portugal would be the leading nation in a new universal age of prosperity called the Fifth Empire ('Quinto Império').⁴⁰⁸ This was the subject of one of his major works, the *História do Futuro* (Lisbon, 1718).

⁴⁰⁶ Brosseder, 'Reading the Peruvian Skies', 414. According to Brosseder no exemplars of these almanacs have survived.

⁴⁰⁷ There is an immense bibliography on Vieira; for a biography of António Vieira see Serafim Leite, *História Da Companhia de Jesus No Brasil*, vol. 4, 10 vols (Rio de Janeiro: Instituto Nacional do Livro, 1943); Hernâni Cidade, *Padre António Vieira: a obra e o homem*, 2nd ed. (Lisboa: Arcádia, 1979); José Van Den Besselaar, *António Vieira: o homem, a obra, as ideias* (Lisboa: Inst. de Cultura e Língua Portuguesa, 1981); J. Lúcio de Azevedo, *História de António Vieira*, 3rd ed. (Lisboa: Clássica, 1992).; a bibliography of his writings can be found in José Pedro Paiva, *Padre António Vieira, 1608-1697: bibliografia* (Biblioteca Nacional Portugal, 1999) and his collected works were recently published in José Eduardo Franco and Pedro Calafate, eds., *Obra completa. Padre António Vieira*, 30 vols (Lisboa: Círculo de Leitores, 2013).

⁴⁰⁸ The first empire being the Assyro-Chaldean, the second, the Persian, the third Ancient Greece, the fourth, the Roman, and the fifth, Portugal. On Vieira's ideas see: Robert Ricard, 'Prophecy and Messianism in the Works of Antonio Vieira', *The Americas* 17, no. 4 (1961): 357-68; Dauril Alden, 'Some Reflections on Antonio Vieira: Seventeenth-Century Troubleshooter and Troublemaker', *Luso-Brazilian Review* 40, no. 1 (2003): 7-16; Lauri Tähminen, 'The Intellectual Construction of the Fifth Empire: Legitimizing the Braganza Restoration', *History of European Ideas* 38, no. 3 (2012):

Astrology was certainly one of his main interests, as is made patent in many of his writings and letters.⁴⁰⁹ A complete study of Vieira's relationship with astrology is out of the scope of the present study; however, his use of astrology as a religious and a political rhetorical device is a good example of his knowledge of the subject. Like his aforementioned Jesuit colleagues, Vieira refers and comments on the effects of several comets, from the one of 1618 which he observed in his youth in Bahia,⁴¹⁰ to the comet of 1695 at the very end of his life.⁴¹¹ None of his observations have the precision or the astronomical content of Stancel and Kino, as Vieira was not an astronomer. However, they reveal a practical use of astrology in a Jesuit context outside the circle of those who were trained in mathematics. His discourse towards astrology is no different than the common stand for a religious man. As expected, he rejects judicial astrology as vain, accepting only its sanctioned natural counterpart. In his sermon on the comet of 1695, he states:

This judgement is not called astronomical because it is not our intent to examine, or define the nature, the matter, the birth, the place, the distances, the aspects, the movements, nor any of the other circumstances which are curiously employed for the observations of astronomy; much less the duration and fading of the prodigious meteor, for they are still pendant. Additionally, this judgement is also not called astrological because, since we, together with the rest of the sages and prudent professors of this very art, knowing how useless, unfruitful and vain is that part of astrology which is called judiciary, that commonly entertains the speeches and deceives the hope or imagination of men – it would not only be a crime against God's providence, but also a despising of His so evident warnings, to divert them towards idle considerations, in which can be confused and lost the proper and healthy effects that such a notable and noticeable cause should and can produce in us.⁴¹²

413–25; Ana Paula Torres and Luís Filipe Silvério Lima, eds., *Visions, Prophecies and Divinations: Early Modern Messianism and Millenarianism in Iberian America, Spain and Portugal* (Boston: Brill Academic Pub, 2016).

⁴⁰⁹ For Vieira's relationship with astrology see for example: Camenietzki, 'O cometa, o pregador e o cientista - António Vieira e Valentin Stansel observam o céu da Bahia no século XVII'; Carolino, *Ciência, astrologia e sociedade*, 139–66; Joaquim Fernandes, 'O Padre António Vieira e Os "Sinais (Na Mentira Azul) Do Céu"', *Revista Da Faculdade de Ciências Humanas e Sociais*, no. 5 (2008): 10–20.

⁴¹⁰ As he mentions in a letter dated from 1659 published in António Vieira, 'Esperança de Portugal, Quinto Império do Mundo, primeira e segunda vida de el-rei D. João o Quarto, escritas por Gonsalvanes Bandarra e comentadas pelo Padre António Vieira da Companhia de Jesus', in *Obras inéditas* (Lisboa: J. M. C. Seabra & T. Q. Antunes, 1856), 127.

⁴¹¹ António Vieira, 'Voz de Deos ao Mundo, a Portugal, e à Bahia. Juizo do cometa, que nella foi visto em 27 de Outubro de 1695, & continua até hoje 9 de Novembro do mesmo anno', in *Sermoens e varios discursos do Padre Antonio Vieyra de Companhia de Iesu, pregador de sua magestade. Tomo XIV. Obra posthuma.*, vol. 14 (Lisboa: Valentium da Costa Deslandes, 1710), 225–65.

⁴¹² Não se chama este juizo Astronomico, porque não é nosso intento examinar, ou diffinir a natureza, a materia, o nascimento, o lugar, as distancias, os aspectos, os movimentos, nem algumas das outras circunstanciasem que curiosamente se empregam as observações da Astronomia; & muito menos a duração, & o caso deste prodigioso metheoro, pois ainda estão pendentes. Tambem se não chama Astrológico este juizo, porque reputando nós com os mais Sabios, e prudentes professores da mesma Arte, quam inutil, infructuosa, & vã seja aquella parte da Astrologia, que com o nome de Judiciaria costuma entreter os discursos e enganar as esperanças, ou fantasias dos homens; não só seria crime contra a Providencia do Altissimo, mas desprezo de seus avisos tão manifestos, divertillos a considerações ociosas, em que se confundão, & percão os efeitos proprios, & saudaveis, que deve, & póde produzir em nós uma causa tão notavel, & tão notoria – Vieira, 225–26.

He clearly excuses himself as an astronomer and puts aside any discussion regarding astronomical data. His apparent rejection of astrology regards only the illicit judicial parts, as he places himself together with ‘the rest of the sages and prudent professors of this very art’, which implies the practice of natural astrology. Like Stansel, he wholeheartedly considers the comets to be signs from God to mortals, that should not be taken lightly. Furthermore, as signs of God they are expressed in a language that mortals can understand, thus the common logic used to interpret them, that is astrology, is correct. Consequently, he uses the divine intent manifested in the comet to justify the licitness of their (astrological) judgement:

... God, as the Author of nature and Supreme Lord and governor of the Universe, uses them to His good pleasure, and by means of these signs speaks to us and warns us (...) and these are today the signs and large characters of the heavens with which God gives us meaning and notifies His decrees. Wherefrom it follows that the common reasoning that the world has formed on the significations of these signs from heaven, is their true meaning; because otherwise the presentation of these same comets would be idle and useless. Nor can it be presumed that divine wisdom and providence would want to speak and admonish men by a language that they do not understand.⁴¹³

In the following pages, Vieira continues his argument of the comets being divine signs, citing religious and classical authors, as well as astronomers such as Riccioli, Argoli and Kepler. He presents an extensive list of past comets and their effects on political affairs, wars, the death of kings, and the fall and rise of monarchies. Despite his initial statement that it was too soon to say anything about this comet, as at the time it was still visible in the sky, in the end he makes an allegorical judgement of the phenomenon combining its sword-like appearance with biblical and prophetic texts. He thus considers the comet as a divine warning against sin, luxury and vanity, for which the people of Bahia must do penance.

Another example of Antonio Vieira’s domain of astrology is present in his sermon of 16 December 1688 to give thanks for the birth of the firstborn of King Pedro II.⁴¹⁴ In this sermon he uses astrological arguments to support the new Portuguese royal dynasty on two occasions. The first appears in the sermon honouring the birth of the prince (pages 84 to 88), and the second in the apologetic addendum to the sermon dedicated to the queen and written after the

⁴¹³ ... Deos como Author da natureza, & supremo Senhor, & governador do universo usa delles a seu beneplacito, e que por meio destes signnes nos falla e nos avisa. (...) & estes são hoje os sinaes, & caracteres grandes do Ceo, com que Deus nos significa, & notifica seus Decretos. Donde tambem se segue, que o conceito comum, que o mundo tem formado das significações destes sinaes do Ceo, he o verdadeiro significado delles; porque de outra maneira seria ociosa, & inutil a ostentação dos mesmos Cometas. Nem se pôde presumir da sabedoria, & Providencia Divina, queira fallar, & admoestar aos homens por linguagem, que elles não entendão. – Vieira, 231.

⁴¹⁴ António Vieira, *Palavra de Deos empenhada, e desempenhada. Empenhada no Sermam das Exequias da Rainha N.S. Dona Maria Francisca Isabel de Saboya; Desempenhada no Sermam de Acçam de Graças pelo nascimento do Principe D. João Primogenito de SS. Magestades, que Deos guarde. Prêgou hum, & outro O P. Antonio Vieyra da Companhia de Jesu, Prêgador de S. Magestade: O primeiro Na Igreja da Misericordia da Bahia em 11 de Setembro, anno de 1684. O segundo Na Catedral da mesma Cidade, em 16. de Dezembro, anno de 1688* (Lisboa: Miguel Deslandes, 1690), 65–276.

death of the prince (pages 227 to 236). Both present the same argument, but the latter has a slightly more astrological content.⁴¹⁵ Vieira arranged the apologetic discourse into fourteen sections in which he presents several arguments; section nine is dedicated to ‘the mathematicians and to the stars’ (aos Mathematicos, & ás Estrellas).⁴¹⁶ Here Vieira presents the astrological or celestial reason for the Restoration of the Portuguese monarchy and its continuing success. He begins by referring to the importance of the ‘new star’ of 1604⁴¹⁷ in this process:

As for that new star which was born in the year of six hundred and four in the same place where the comet of the year of five hundred and eighty died and disappeared, we have already seen that it was a sign of the heavens that pointed to King João IV, first born of the Braganza, who was born in the same year of six hundred and four to succeed in the place of King Henrique, who died in the year of five hundred and eighty. Thus was signified the person and of how in him the kingdom would be restored, and the crown returned to the Portuguese kings, all of which we have seen fulfilled in the fated year of six hundred and forty. And did this new star mean something more? Two things, and two novelties, the greatest ever seen and that the world has been waiting to see for many years. The first, is that in Christianity a monarchy will rise that will dominate and be master of all the Universe. The second is that this monarchy and its monarch will be the one to destroy and extinguish the sect and empire of Muhammad. So expressly says the aforementioned Kepler, the famous mathematician of this century...⁴¹⁸

He directly connects the new star to the new king of Portugal, who was born in the same year that the star appeared. This was an important astrological argument that had circulated among Portuguese astrologers and had been a powerful instrument used in the consolidating of the new Portuguese dynasty. Taking as his base the authority of Kepler on *De Stella nova in pede Serpentarii* (Prague, 1606), he puts forward astrological arguments that substantiate his ideal

⁴¹⁵ On the first section of the discourse see Carolino, *Ciência, astrologia e sociedade*, 158–61.

⁴¹⁶ Vieira, *Palavra de Deos empenhada, e desempenhada. Empenhada no Sermam das Exequias da Rainha N.S. Dona Maria Francisca Isabel de Saboya; Desempenhada no Sermam de Açam de Graças pelo nascimento do Principe D. João Primogenito de SS. Magestades, que Deos guarde. Prêgou hum, & outro O P. Antonio Vieyra da Companhia de Jesu, Prêgador de S. Magestade: O primeiro Na Igreja da Misericordia da Bahia em 11 de Setembro, anno de 1684. O segundo Na Catedral da mesma Cidade, em 16. de Dezembro, anno de 1688*, 227–36.

⁴¹⁷ Also known as Kepler's Supernova.

⁴¹⁸ Aquella Estrella nova, que nasceo no anno de seiscentos & quatro, no mesmo lugar onde morreo, & desapareceo o Cometa: do anno de quinhentos & oitenta, já vimos como foy hum sinal do Ceo, que apontava para El Rey Dom João primogenito de Bragança, o qual nasceo no mesmo anno de seiscentos & quatro, para succeder no lugar a El Rey D. Henrique morto no anno de quinhentos & oitenta. Esta foy a significação da pessoa, & como nella se havia de restaurar o Reyno, & tornar a Coroa aos Reys Portuguezes, o que tudo vimos cumprido no anno fatal de seiscentos & quarenta. E significava mais alguma cousa a mesma Estrella nova? Duas cousas, & duas novidades as mayores que nunca vio, & ha muitos annos espera ver o mundo. A primeira, que na Christandade se levantaria hum nova Monarchia, que dominaria, & seria senhora de todo o universo. A segunda, que esta Monarchia, & o seu Monarcha seria o que destruisse, & extinguisse a Seyta, & Império Mahometano. Assim o diz expressamente o já allegado Keplero, Mathematico famoso deste seculo... Vieira, *Palavra de Deos empenhada, e desempenhada. Empenhada no Sermam das Exequias da Rainha N.S. Dona Maria Francisca Isabel de Saboya; Desempenhada no Sermam de Açam de Graças pelo nascimento do Principe D. João Primogenito de SS. Magestades, que Deos guarde. Prêgou hum, & outro O P. Antonio Vieyra da Companhia de Jesu, Prêgador de S. Magestade: O primeiro Na Igreja da Misericordia da Bahia em 11 de Setembro, anno de 1684. O segundo Na Catedral da mesma Cidade, em 16. de Dezembro, anno de 1688*, 227–28.

that Portugal would become this universal powerful monarchy, that would rule all others and finally end the Islamic threat:

And as to the fact that the star appeared in the sign of Sagittarius, and in the same part of that sign in which can be seen the figure of the Serpentarius; we have said elsewhere that as Sagittarius astrologically dominates over Spain, so the Serpentarius, within that same Spain, signifies Portugal because the serpent is the crest of its [coat of] arms, and its arms [i.e. shield] the wounds of Christ, whose power and virtue attribute [to it] the victory and triumph over Muhammad as do the aforesaid prognostications.⁴¹⁹

In Vieira's view, Kepler only failed to mention the person who would carry out the mission of vanquishing Islam, something that the Portuguese author Manuel Bocarro Francês (1588-1668) did not. Like Vieira, Bocarro wrote several texts on comets, astrology and prophecy.⁴²⁰ Vieira quotes part of his *Anacephaleoses da Monarchia Lusitana* (Lisboa, 1624) in which, in a form of a poem, he attributes the role of saviour of Portugal to the future King João IV:

The only thing missing from the judgement of this notable mathematician was to name the person that would be the glorious instrument of one and the other fortune. But this individualization, that was not so easy to read or spell in the characters of heaven, supplied a little time after him another professor of the same science of our own land, and in it well known, and even more in the foreign lands, by the name of Bocarro.⁴²¹

Although he does not refer to it, Vieira is not the source of this association of the new star with King João IV, nor of the reference to Kepler's text. The first known account is in a Portuguese almanac, published in 1644 by the royal physician, Francisco Guilherme Casmach (1569-16-?)

⁴¹⁹ E quanto a aparecer a Estrella sinaladamente no signo de Sagittario, & na parte do mesmo signo, que distingue a figura do Serpentario; já deixamos dito, que assim como o Sagittario astrologicamente domina sobre Espanha, assim o Serpentario dentro da mesma Espanha sinala a Portugal, por ser a Serpente o timbre de suas Armas, & as suas Armas as Chagas de Christo, a cujo poder, & virtude atribuem a vitoria, & triunfo de Mafoma os mesmos vaticinios. Vieira, 231–32.

⁴²⁰ Manuel Bocarro Francês, also known as Jacob Rosales, was a physician of Jewish accent and a well-known figure in the Portuguese sixteenth-century culture. He published a treatise on comets, the *Tratado dos Cometas que Apareceram em novembro passado de 1618* (Lisboa, 1619), and several works combining astrology and prophecy such as *Anacephaleoses da Monarchia Lusitana* (Lisboa, 1624) and *Luz Pequena Lunar e Estellifera da Monarchia Lusitana* (Roma, 1626). On Bocarro. On his work and life see: Carlos Ziller Camenietzki, Luís Miguel Carolino, and Bruno Martins Leite, 'A Disputa Do Cometa: Matemática e Filosofia Na Controvérsia Entre Manuel Bocarro Francês e Mendo Pacheco de Brito Acerca Do Cometa de 1618', *Revista Brasileira de História Da Matemática* 4, no. 7 (2004): 3–18; Luís Miguel Carolino, 'Scienza, Politica Ed Escatologia Nella Formazione Dello "scienziato" Nell'Europa Del XVII Secolo: Il Caso Di Manuel Bocarro Francês - Jacob Rosales', *Nuncius* 19, no. 2 (2004): 477–506; Sandra Neves Silva, 'O físico Imanuel Bocarro Rosales: vestígios da sua presença em Livorno', *Estudos Italianos em Portugal*, no. 0 (2005): 65–77; Francisco Moreno-Carvalho, 'Jacob Rosales/Manoel Bocarro Francês: Judaísmo, Sebastianismo, Medicina e Ciência Na Vida Intelectual de Um Médico Judeu Português Do Século XVII' (PhD thesis, São Paulo, Universidade de São Paulo, 2011); Florbela Veiga Frade and Sandra Neves Silva, 'Medicina e Política Em Dois Físicos Judeus Portugueses de Hamburgo: Rodrigo de Castro e o "Medicus Politicus" (1614), e Manuel Bocarro Rosales e o "Status Astrologicus" (1644)', *Sefarad* 71, no. 1 (2011): 51–94.

⁴²¹ Só faltou ao juizo deste insigne Mathematico nomear a pessoa, que havia de ser o glorioso instrumento de huma, & outra felicidade. Mas esta individuação, que não era tam fácil de ler, ou soletrar nos caracteres do Ceo, suprio pouco depois delle outro professor da mesma sciencia na nossa terra, bem conhecido nella, & mais nas estranhas pelo nome de Bocarro. Vieira, *Palavra de Deos empenhada, e desempenhada. Empenhada no Sermam das Exequias da Rainha N.S. Dona Maria Francisca Isabel de Saboya; Desempenhada no Sermam de Aççam de Graças pelo nascimento do Principe D. João Primogenito de SS. Magestades, que Deos guarde. Prêgou hum, & outro O P. Antonio Vieyra da Companhia de Jesu, Prêgador de S. Magestade: O primeiro Na Igreja da Misericórdia da Bahia em 11 de Setembro, anno de 1684. O segundo Na Catedral da mesma Cidade, em 16. de Dezembro, anno de 1688*, 232.

(also ‘Kasmach’). Entitled *Almanach prototypo, e exemplar de pronosticos* (‘Prototype almanac and exemplar of prognostications’), this booklet was intended for a more educated audience and presented several astrological considerations on the still recent coup that had placed João IV into power.⁴²² First Casmach writes of the grand events of that time:

It was that prodigious star that the Eternal God newly created, and that appeared in the right foot of the Serpentarius at the seventeenth and a half degree of Sagittarius, with almost two degrees of latitude, as the most notable astrologers of the World observed; as was the case of David Fabricius, astronomer, and Johannes Kepler, Imperial Mathematician, and others that he refers to. This star appeared in the year of 1604 in which was born your most serene king and lord, João IV, in the sign to which is associated Portugal, Jerusalem and the African sea, etc. Listen to me, unbelievers that still doubt that which they see with their eyes, as the Hebrews did with their Messiah, and see the evident signs which God manifests to us in this star, that this king is the promised one, whose kingdom will turn very soon into empire and into supreme monarchy with fortunes never [before] seen or heard.⁴²³

Then he continues with the astrological interpretation of the star and its relationship with other astronomical events:

... we became subjugated to Castile, what came to be in the year 1580 in which appeared that fatal comet, through which Helisaeus Roeslin, to whom Kepler refers, came to know and calculate *all the catastrophes in Europe* ... This star is to me of much greater admiration because more than twenty years ago I predicted, from the star of 1572 and of the comet of 1580, that there would occur in this year of 1604 a prodigy over all the miracles of nature ... and you will find admirable things, since the comet of 1580 almost pointed with his finger to this star, since it disappeared in the same place in which this new star shines, and [in the same place] in which occurred the great conjunction [of 1603].⁴²⁴

⁴²² Francisco Guilherme Casmach, *Almanach prototypo, e exemplar de pronosticos: Com particulares ephemeridas das conjunções, & aspectos dos planetas, eclipses do sol, & lua, & pronosticação de seus efeitos pera o presente anno de 1645 Calculado pela nova, & genuina theorica do motu celeste, & thesouro das observaçoens astronomicas lansbergienses, argolicas, & de Origano ao meridiano desta cidade de Lisboa* (Lisboa: Paulo Craesbeeck, 1644). He published a follow-up to *Almanach prototypo* dealing with the astrological study of the year of 1646: *Brachylogia astrologica e apocatastasis, apographica do sol, lua, & mais planetas, com todos seus aspectos, eclipses, & pronosticação de seus efeitos, pera o presente anno de 646: Calculado pella nova, e genuina theorica do motu celeste, & thesouro das observaço-es astronomicas lansbergienses, & argolicas, parisienses, & de Origano, tychomicas, & proprias pera o meridiano desta cidade de Lisboa* (Lisboa: Paulo Craesbeeck, 1646). On his works see: Carolino, *A escrita celeste*, 42–43, 52–61; *Ciência, astrologia e sociedade*, 223–24; Carlos Ziller Camenietzk and Luís Miguel Carolino, ‘Astrologers at War: Manuel Galhano Lourosa and the Political Restoration of Portugal, 1640-1668’, *Culture and Cosmos*, no. 13 (2009): 68–70.

⁴²³ ...foy aquella prodigiosa Estrella, que o Eterno Deos criou de nouo, & apareceu no pe direito do Serpentario em 17.graus, & meyo de Sagittario como quase dois graos de latitude, como mais insignes Astrologos do mundo observarão, como foi David Fabricio Astronomo, & João Keplero Mathematico Imperial, & outros que elle alega. Apareceu esta Estrella no anno de 1604. em que nasceo o nosso Serenissimo Rey, & senhor Dom IOAM o IV. no signo, a que está sogeito Portugal, Hierusalem, & o mar Africano, &c. Ouçãome os incredulos, que ainda duvidam do que vem com os olhos, & tem outras esperanças, como os Hebreus do seu Messias. E vejão os sinais evidentes, com que Deos nos manifestou nesta estrella ser este Rey o prometido, cujo Reyno se trocara muy cedo em Imperio, & Suprema Monarquia, com felicidades nunca vistas, nem ouuidas. Casmach, *Almanach prototypo, e exemplar de pronosticos*, unnumbered page.

⁴²⁴ ...ficamos soeitos a Castella, o que succedeo no anno de 1580. em que appareceu aquelle faltal Cometa, pelo qual Heliseu Roslino, a quem refere Keplero veio a conhecer, & calcular Rerum omnium Europae Catastrophen’ ... ‘Esta Estrella he pera mim de muito mayor admiração, porque ha mais de vinte annos, que a estrella do ano 1572. & do Cometa de 1580. preui auer de acontecer neste anno de 1604. hum prodigio sobre todos os milagres da natureza (...) & acharas cousas

Although quite clear in his initial statements, later in the text, Casmach highlights an even stronger astrological connection of the new star with the king, referring to his birth chart:

... and among all the other notable things that happened in this time, it was not less that the new star, which appeared in the birth of His Majesty, was horoscopic to him.⁴²⁵

Meaning that the star was rising at the time of the birth, thus being in the horoscope, that is the ascending sign, or in the first house of the king's astrological figure, a very prominent position for any planet or star. This is something that Vieira does not refer to, but the line of reasoning is fundamentally the same, with just small variations. The most relevant matter in Vieira's discourse is the association of the constellations with the arms of Portugal, that Casmach does not mention. Vieira was in Portugal at the time of these publications, serving as an advisor to the court. As an educated man he most certainly had contact with the astrological discussions surrounding such an important event as the restauration, as well as those regarding the horoscope of the new king. Casmach does not cite any source for the ideas and puts them forth as his own. If this is the case it is strange that Vieira would not cite him as the source, as he does for other authors. It could simply be that this was a general discussion among practitioners of astrology and Casmach himself is just reporting it, as is Vieira. More research will be needed to clarify this, but whatever may be the case it shows that Vieira was well informed on the astrological practices regarding politics. Indeed, in the sermon, Vieira is quite open to the practice of astrology, and even if he made statements against it elsewhere, he appears to be referring to the low-quality practices or those outside the boundaries of what would be acceptable for a Catholic. The sermon quotes and explains Kepler's astrological reasoning, a straightforward showcase of astrological interpretation. For example, Vieira quotes Kepler who states that as the star was in Sagittarius, triplicity of the Sun, Jupiter and Mars;⁴²⁶ as Mars, which represents the Turks, was in a southern latitude to the ecliptic, below the star, the Sun and Jupiter, this would imply their defeat. Then Vieira summarises this in his own words:

And because God, Who reveals His secrets in many ways, can certainly do it as well by using the same rules as the mathematicians, even if they are uncertain: considering the place where the new star was positioned with the Sun and Jupiter, which they say favour the Christians, and with Mars that they also say that favours the Turks, the total victory

admiraueis, que o Cometa de 1580. quasi apontava com o dedo nesta estrella; porque desapareceu no mesmo lugar, em que esta noua estrella resplandece, & em que acontecera a conjunção maxima. Casmach, unnumbered page.

⁴²⁵ *& entre as demais notabilidades, que neste tempo acontecerão, nam foi menor que a estrella noua, que no nascimento de Sua Magestade appareceu, & lhe foi horoscopante.* Casmach, unnumbered page.

⁴²⁶ Here he is using the Ptolemaic version of the triplicities that attribute to the signs of the element Fire (Aries, Leo and Sagittarius) the triplicity rulers of Sun, Jupiter, and Mars, instead of the classical Sun, Jupiter and Saturn (see Chapter 11).

of the Christian religion against Muhammad's sect can be concluded and astrologically confirmed.⁴²⁷

As in the case of his 1695 text on the comets, Vieira is stepping into the boundaries of what would be admissible: judgements on political events and on the rise and fall of governments and monarchs. Although common in this period, they are on the very edge of the definition of natural astrology. Furthermore, in this case they cross as well into the dangerous realms of prophecy and of the interpretation of divine providence.

It can be argued that most of his interpretations are driven by his millenarian patriotism and can thus be considered biased, which is frequently the case when astrology is being used as a political device. Nevertheless, they reveal not only good knowledge of the current astrological discourse taking place among the scholars of his time, but also a fairly good practical knowledge of astrology, both of which he applies to consolidate his preaching, for example, by adapting the natural zodiacal qualities of the yearly cycle to support Christian belief when addressing the birth of the Virgin Mary:⁴²⁸

And the mystery of the day of birth of the Lady is so because in that time the Sun passes from the sign of Leo to the sign of Virgo, and that same Sun begins to slow down. The path of the Sun goes through the twelve celestial signs which have different effects according to the constellation and qualities of each one. When the Sun enters the sign of Leo, is as if it takes on the nature of that animal, choleric and angry, its effects being heat, dryness, malignant infirmities, delirium, blood, deaths. However, when the Sun passes from the sign of Leo to the Sign of Virgo, the Lion slows down, it becomes tame, it becomes peaceful, it becomes like a lamb.⁴²⁹

⁴²⁷ E como Deos, que por muitos modos costuma revelar os seus secretos, o póde tambem fazer usando com certeza das mesmas regras dos Mathematicos, posto que incertas: considerado o sitio em que a Estrella nova se achava com o Sol, & Jupiter, que elles dizem favorecer aos Christãos, & com Marte, que tambem dizem favorecer aos Turcos, se conclue, & convence astrologicamente a vitoria total da Religião Cristãa contra a Seyta Mahometana. Vieira, *Palavra de Deos empenhada, e desempenhada. Empenhada no Sermam das Exequias da Rainha N.S. Dona Maria Francisca Isabel de Saboya; Desempenhada no Sermam de Acçam de Graças pelo nascimento do Principe D. João Primogenito de SS. Magestades, que Deos guarde. Prègou hum, & outro O P. Antonio Vieyra da Companhia de Jesu, Prègador de S. Magestade: O primeiro Na Igreja da Misericordia da Bahia em 11 de Setembro, anno de 1684. O segundo Na Catedral da mesma Cidade, em 16. de Dezembro, anno de 1688*, 230–31.

⁴²⁸ António Vieira, *Sermam do nascimento da Virgem Maria, debaixo da Invocação de N. Senhora da luz: Titulo da Igreja, & Collegio da Companhia de Jesu, na Cidade de S. Luis do Maranhão. Anno de 1657*, in António Vieira, *Sermoens e varios discursos do Padre Antonio Vieyra de Companhia de Jesu, pregador de sua magestade. Tomo XIV. Obra posthuma.*, vol. 14 (Lisboa: Valentim da Costa Deslandes, 1710), 230–98.

⁴²⁹ E o mysterio do dia do Nascimento da Senhora, he, porque neste tempo passa o Sol do Signo de Leão para o Signo de Virgem, & começa o mesmo Sol a abrandar. O caminho do Sol he pelos doze Signos celestes, em que tem diferentes effeytos, conforme a constellação, & calidades de cada hum. Quando o Sol anda no signo de Leão, como se tomàra a natureza daquelle animal colerico, & assanhado, taes são os seus effeytos: calores, seccuras, enfermidades malignas, tresvários, sangue, mortes. Porém tanto que o Sol passa do signo de Leão ao Signo de Virgem, já o Leão começa a abrandar, já vay manso, já vai pacifico, já vay cordeyro. Vieira, 14:256.



Figure 9.3 – The Virgin Mary with astrological motifs (1758)

Litaniae Lauretanae ad Beatae Virginis (Augsburg, Johannes Baptist Burckhart, 1758). This eighteenth-century engraving from the Litany of Loreto preserves quite notably the astrological symbolism associating the Sun in the sign of Virgo as an allegory of Mary carrying the Son of God. The Sun represents Christ, the sign of Virgo, the Virgin herself. At her feet is a Moon, which receives its light from the Sun and constitutes another symbol for the Virgin Mary.

Hagiographic astrology

Vieira is not the only Jesuit to use astrological references in his sermons or in religious discourse. Another example is Antonio de Céspedes (17th c.), a missionary in Lima, Peru.⁴³⁰ In a sermon celebrating a miraculous cure attributed to the Jesuit saint Stanislaus Kostka, he makes some considerations regarding the astrological signs underlining the saint's virtues:⁴³¹

Yes, for the handsome child was born in the orchard of the Society, under the signs of Virgo and Aries: if one nature produces flowers, and the other produces fruits, also in the supernatural the sign of Aries, of that Candid Eucharistic Lamb, produces, as can be seen, the fruits of glory of beatitude; and in the sign of the Virgin [Virgo], Mary, crowned by beautiful flowers of grace, to embellish the triumphs of Stanislas, will freely grant us Her love if our devotion pleads for it reverently, greeting it with the Angel.⁴³²

Like his fellow preacher Vieira, Céspedes uses astrological elements as Christian allegories, but in this instance, he appears to be referring to specific astrological settings. Brosseder mentions this as being a reference to Kostka's horoscope, but the fact that he mentions Kostka as being born to the Society, and considering the signs involved, he might be referring to celestial positions on the day of the saint's entrance into the novitiate, or even to his death which occurred on 14 August 1668, when the Sun was in Virgo. Céspedes displays at least an elementary knowledge of astrology and cosmology since further on in the sermon he draws an allegory using the sunspots:

Oh, torches of Stanislas, that surpass the Sun, for even in the Sun, the attentive care of the astrologer has observed I know not what spots! God save you, faithful man, from certain astrologers' eyes that are used, [eyes] that discover faults in the brightest solar [light], dressing what they see with the bad colour of their whims, and whilst the fault is with them, they attribute it to others.⁴³³

The astrological study of religious figures seems to be fundamental for some Jesuit authors. Another example of this practice is the above-mentioned Juan Bautista de Poza (1588-1659). Poza was a professor at the Colegio Imperial of Madrid and was the author of numerous writings. One of his most controversial books is the abovementioned Mariological text,

⁴³⁰ Referred by Brosseder, 'Reading the Peruvian Skies', 417–18, 424.

⁴³¹ Antonio Céspedes, *En la niñez mas valiente el luzir a lo de dios. Sermon del beato Estaslao de Koska* (Lima, 1672) published in Antónío Céspedes, *Sermones varios predicados por el Padre Antonio de Cespedes, de la Compañia de Iesus, en el Reyno del Peru* (Madrid: Imprenta Real, 1677), 27–47.

⁴³² Si, que nació aquelle hermoso pimpollo en el Vergel de la Compañia, debaxo de los Signos, Virgo, y Aries: que si aquel en lo natural produce flores, y este produce los frutos, tambien en lo sobrenatural, el Signo Aries de esse Candido Eucharistico Cordero, produce, como se ha visto, frutos de gloria de una Bienaventurança: y el Signo Virgo Maria, hermosas flores de gracia, que para entreteger a los triunfos de Estanislaio la corona, nos concedera liberal su amor, si reverente nuestra devocion se lo suplica, saludandola con el Angel. Céspedes, 30–31.

⁴³³ O antorchas de Estanislaio, que se las ganais ao Sol, pues aun el Sol llegó el cuidado atento del Astrologo, à mirar no sè que manchas! Dios os libre, Fieles, de unos Astrologos ojos que se usan, descubridores de faltas en el mas claro solar, vistiendo quanto ven del mal color de sus antojos, y estando la falta en ellos, la atribuyen à los outros. Céspedes, 35.

Elucidarium Deiparae (Lyon, 1627). Due to doctrinal irregularities in this book he was judged by the Inquisition and later retired to Cuenca in Peru (present day Ecuador) for the remainder of his life.⁴³⁴ Book one, treatise four, of the *Elucidarium*, ‘The astrological, mystical and moral chronography of all the mysteries of the Virgin’s childhood’ (*De Chronografia Astrologica mystica, & morali omnium mysteriorum infantiae Virginis*), contains an account of the birth and life of the Holy Virgin in which De Poza combines religious and astronomical sources and makes several astrological comments. The work offers only general considerations of conjectural positions of the planets and of the signs at her birth, and the notable events of her life, including the birth of Christ and the Crucifixion. It is not an astrological text in itself, as it offers no complete astrological data, such as astrological charts.⁴³⁵ Nonetheless, the interweaving of astrological rationale with religious biography shows how much astrology was important in De Poza’s mind. The sermons by the Creole preacher, Juan de Espinosa Medrano (1630?-1688), present another notable example, though not from a Jesuit.⁴³⁶ In his *Sermon a la Concepcion de Nuestra Señora* (1670), most likely inspired by the *Elucidarium*, he states that:

How fortunate and happy was that hour; nature embellished itself with joy, the heavens were cleansed, the Stars were better gilded; and as Men and the Sun engender Men, the Sun adorned itself for the most illustrious function of its influxes, (let’s change into astrologers) the Sun was, at the conception of Mary, in the sign of Sagittarius ...⁴³⁷

In the South American context, this Christian use of the astrological language by Jesuits and others can be seen as a way of fighting idolatry.⁴³⁸ However, by placing the stars under the auspice of the Holly Mother and the saints, and by embedding them within Christian imagery these authors are not only remitting the pagan remnants of the figuration of the heavens, but also bringing astrological concepts and vocabulary into the Christian vision of the World. Here, astrology is not being applied as a technical knowledge for prognostication of nature and human life, but as a language densely packed with symbolism and meaning, understood both at educated and popular levels, and universal in all European cultures.

⁴³⁴ Regarding his struggle with the Inquisition, see: Doris Moreno Martínez and Manuel Peña Díaz, ‘El jesuita Juan Bautista Poza y la censura’, in *Riti di passaggio, storie di giustizia. Per Adriano Prosperi*, ed. Vincenzo Lavenia and Giovanna Paolin (Pisa: Edizioni della Normale, 2011), 159–69; Patricia Manning, *Voicing Dissent in Seventeenth-Century Spain: Inquisition, Social Criticism and Theology in the Case of El Crítico* (Brill, 2009), 134–36.

⁴³⁵ A similar text was published by the Dutch Jesuit theologian, Maximilian van der Sandt (1578 -1656): *Maria Sol Mysticus* (Köln, 1636).

⁴³⁶ See Charles B. Moore, *El arte de predicar de Juan Espinosa Medrano en La novena maravilla* (Lima: Fondo Editorial PUCP, 2000), 160–68.

⁴³⁷ Que fue aquella hora fortunada, feliz; espeluzese de gozo la Naturaleza, assearonse los Cielos, doraronse mejor los Astros; y como el Hombre y el Sol engendran al Hombre, engalanòse el Sol para la mas ilustre funcion de sus influxos, (metamonos à Astrologos) Hallavase el Sol al Concebirse Maria en el Signo Sagitario ... – quoted in Moore, 164.

⁴³⁸ Brosseder, ‘Reading the Peruvian Skies’, 419–27.

Under new skies

The presence of astrological practices among the Jesuits in America seems evident. Besides the examples presented, many more connections of the Jesuits with astrology appear to exist, for example, in the inquisition processes where they served as judges, witnesses, or consultants.⁴³⁹ These connections and others will have to be fully explored in future research. Many of the great Jesuit figures of the exploration and of science in the Southern Hemisphere, display at least a theoretical knowledge of astrology, if not an active practice, even if only in its sanctioned natural version. The discourse of figures such as Stansel and Kino suggests its common application in medicine, as well as in the interpretations of the effects of comets, conjunctions and eclipses. The writings of figures such as Vieira and Céspedes reveal how this Jesuit knowledge of astrology impacted their religious discourse, and in other instances such as the case of De Poza how it was used to substantiate hagiographical discourse, and in some cases to shape the southern skies to conform to Catholic faith and to promote the prime goal of Christianisation of the New World.

Whatever their contribution, either as explorers, as practitioners, as teachers, as judges, and preachers, or even as designers of new celestial allegories, Jesuits were certainly active agents in applying astrology, and shaping its practice in the New World.



⁴³⁹ Some examples are discussed in Ana Avalos, 'As Above, So Below. Astrology and the Inquisition in Seventeenth-Century New Spain' (PhD thesis, Florence, European University Institute, 2007); and Lanuza Navarro, 'Astrología, Ciencia y Sociedad En La España de Los Austrias'.

PART III. JESUITS TEACHING ASTROLOGY

Having explored the general position of the Jesuits towards astrology, the views of their theologians, the opinions of their mathematicians and astronomers, and its role in their world-wide enterprise, it is now time to address the teaching of astrology in the Jesuit context.

A study of Jesuit printed works on mathematics and astronomy has revealed that, despite some less favourable opinions, from the early beginning of their mathematical tradition, astrology was present and included to some degree among their astronomical teachings. Although the relationship of Jesuits towards astrology was highly shaped by the conflicting issues that the Church had with its practice, it did not stop scholars from addressing it and including its doctrine among their mathematical books. It also became clear that the Jesuit academical elite, particular the mathematically inclined, was for the most part well versed in astrological doctrine and practices. This allowed them to discuss it knowledgeably in their books and present its rules and precepts in a summarised but comprehensive form. It also allowed their missionaries not only to attempt to replace local divinatory practices by western astrology, but also to produce their own treatises, as is seen in the case of China. Furthermore, its use by Jesuits preachers, with no advanced mathematical skills, suggests that astrology had been a part of their education, even if in an introductory form. In this setting important questions arise: how did the Jesuits learn astrology? How and when in the course of their education did they acquired their knowledge of astrology, either at an elementary level or in its advanced practice? The Jesuit printed books present only abridged teachings of astrology, containing a simple exposition of the doctrine but no explanation of its rules of prognostication or its methodologies. This is not unexpected since the printed book was a medium highly filtered by the Society and subjected to the scrutiny of the Inquisition, as discussed above. The manuscript tradition, however, was a much more open medium and subject to minimal censorship, if any. Thus, as shown in the previous chapters, in Jesuit manuscripts, from Christopher Clavius's earliest lessons to Valentin Stansel's judgements on comets, astrology appears with details unseen in printed books. It is in this manuscript tradition that further insight into the relationship of Jesuit scholars with astrology must be sought. The manuscripts of the Jesuit college of Santo Antão in Lisbon provide an in-depth vision of this relationship.

Chapter 10. The *Aula da Esfera* of Santo Antão

One of the richest collections of astrological writings by Jesuits can be found in the surviving manuscripts of the college of Santo Antão in Lisbon, Portugal. These manuscripts are the testimonies of the teaching of astrology in the mathematical class known as the *Aula da Esfera* ('the class on the sphere'), so named in reference to the teaching of *De Sphaera* by John of Sacrobosco. The class included subjects such as astronomy, astrology, geography, and hydrography, as the centrepiece of its curriculum.

The Colégio de Santo Antão (College of Saint Anthony the Great), established in 1542, was one of the oldest houses of the Society in Portugal and the first Jesuit teaching institution to offer public lessons, which began in 1553.⁴⁴⁰ The original building, an old convent located in the Mouraria quarter, known as Santo Antão-o-velho ('the old'), quickly became too small for the growing number of students, which led the Jesuits to search out a new location for their classes. The solution only came in 1573 by the hand of Cardinal Henrique, who in the name of his nephew, King Sebastião of Portugal, sponsored the construction of a new building for the college. The Jesuits were offered a location and a perpetual annual rent, and in return they were required to teach certain classes, among them a public class on mathematics which was the *Aula da Esfera*. This request by the cardinal and the king has been attributed to the decline in the teaching of mathematics in the country after Pedro Nunes, but it is more likely that this request was mainly due to the growing needs of technical personnel in the kingdom. It must be noted, however, that the subject had been previously taught in Santo Antão. In the early years of the college, Francisco Rodrigues (1513-1573) had taught a class on the sphere at its opening in 1553.⁴⁴¹ It is possible that this class was a first iteration of what would become the *Aula da Esfera*, but there are no known details on what was taught.⁴⁴² This class did not last long, since Francisco Rodrigues left for India on March 1556 and became the rector of the college of São Paulo in Goa.⁴⁴³ After this there are no known accounts of such a class being taught until the inauguration of the *Aula da Esfera*. This gap in the teachings offered by the Jesuits may also

⁴⁴⁰ Francisco Rodrigues, *História da Companhia de Jesus na Assistência de Portugal*, vol. I-2 (Porto: Apostolado da Imprensa, 1931), 289-302.

⁴⁴¹ Rodrigues, I-2:298.

⁴⁴² Ugo Baldini dismisses this as a formal mathematics course, believing it to be just a simple introduction to astronomy as a basic mathematical topic – Ugo Baldini, 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640', in *História Das Ciências Matemáticas: Portugal e o Oriente. History of Mathematical Sciences: Portugal and East Asia*, ed. Luís Saraiva (Lisboa: Fundação Oriente, 2000), 56, footnote 16.

⁴⁴³ Diogo Barbosa Machado, *Bibliotheca Lusitana Histórica*, vol. 1 (Lisboa: Oficina de António Isidoro da Fonseca, 1741), 240-41.)

explain the specific request made by Cardinal Henrique and the king. After a few setbacks, the construction of the new building, Santo Antão-o-novo ('the new'), began on 11 May 1579. This was a very ambitious project involving the construction of a grandiose building.⁴⁴⁴ This new impulse promoted the growth of the college, that at its peak held about 2500 students.

The *Aula da Esfera* only began sometime in 1590 and was active until 1759. Its first teacher was João Delgado (1553-1612) who had studied in Rome with Clavius. Differently from the usual Jesuit classes, the *Aula da Esfera* was taught in Portuguese. It was attended by the external pupils, some of the Jesuit students, and also by many of the missionaries passing through Lisbon on their way to the Far East or Brazil. For the latter, the class provided an opportunity to complete their mathematical instruction. The *Aula* was unique not only because of its longevity, 170 years, but also due to its international connections. During its existence it had more than thirty professors, a third of them being foreigners, and some highly reputed scholars. Among them are Christoph Grienberger (1561-1636), who replaced Christopher Clavius in the Collegio Romano, Giovanni Paulo Lembo (c.1570-1618), a reputed constructor of telescopes, the aforementioned Christophoro Borri, a key figure of the seventeenth-century cosmological debates, as well as Ignace Stafford, Simon Fallon, Thomas Barton, Jan Ciermans or Heinrich Uvens, all highly trained mathematicians. Among the teachers there were also notable figures of Portuguese science such as João Delgado, Francisco da Costa, Inácio Vieira, Manuel de Campos, and Eusébio da Veiga. The choice of teaching in Portuguese was doubtless due to the public nature of the classes, intended for a wider audience not always sufficiently proficient in Latin. This unique characteristic, and the inexistence of any other major educational institution teaching this level of mathematical knowledge in Portuguese facilitates the identification of its manuscript production.

From a very early date the class offered subjects beyond the usual curriculum of mathematics, such as lessons on navigation, astrology and, later, military architecture and engineering. It rapidly became the foremost teaching institution in the Portuguese capital and provided an uninterrupted pre-university level education on mathematics for more than one and

⁴⁴⁴ See: Francisco Rodrigues, *História da Companhia de Jesus na Assistência de Portugal*, vol. II-1 (Porto: Apostolado da Imprensa, 1938), 140-92; Fausto Sanches Martins, 'A arquitectura dos primeiros colégios jesuítas de Portugal - 1542-1759: cronologia, artistas, espaços' (Universidade do Porto, 1994), 325-490; Ricardo Lucas Branco, 'A igreja do colégio de Santo Antão-o-Novo. Estudo de um paradigma desaparecido', *Revista de História da Arte*, n.º 9 (2012) 9 (2012): 17-37.

a half centuries.⁴⁴⁵ Santo Antão's *Aula da Esfera* trained most of the country's technical personnel, becoming the main institution in the kingdom for technical education. It was also highly influential in Portuguese society since it had among its students prominent members of the nobility. As an introductory course to the mathematical sciences the *Aula da Esfera* offered programmes that served that purpose. Although it lacked some of the more advanced subjects found at the university level, the course was, for most part of its existence, very efficient in the preparation of students. Many were contented with the comprehensive mathematical curriculum of Santo Antão, following its more practical applications such as military architecture and engineering.

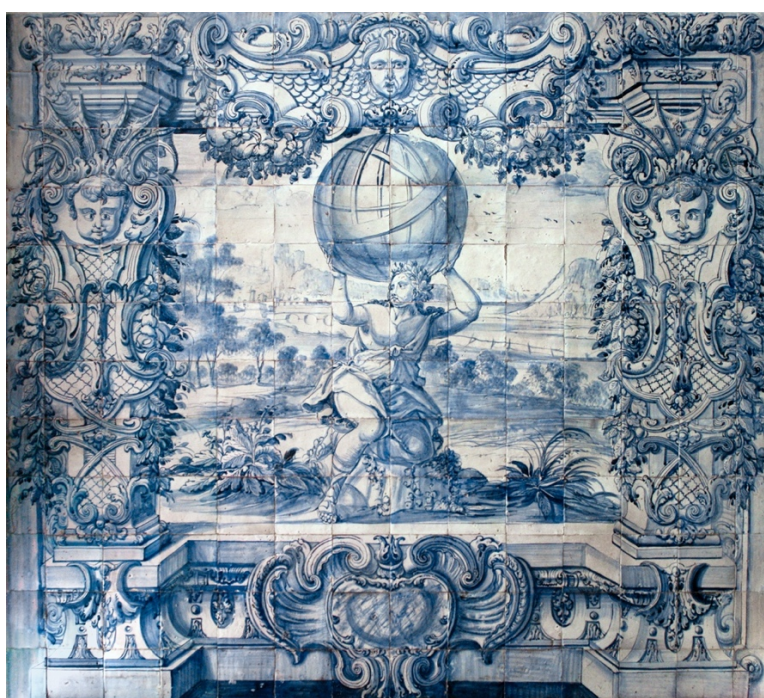


Figure 10.1 – The Main tile panel of the room of the *Aula da Esfera*.

This panel, depicting an armillary sphere alludes to the very name of the *Aula*. It is one of many panels adorning the room where the *Aula da Esfera* took place in the College of Santo Antão, today the great hall of the Hospital of São José. The room was placed so that the outside students could access it without entering in the private areas of the college meant only for its Jesuit occupants (photo from AZlab, <https://blogazlab.wordpress.com>).

⁴⁴⁵ There are several studies addressing the history and role and the *Aula da Esfera* in Portuguese and Jesuit teaching, the most relevant being: Albuquerque, 'A "Aula de Esfera" do Colégio de Santo Antão no Século XVII'; Ugo Baldini, 'As Assistências Ibéricas Da Companhia de Jesus e a Actividade Científica Nas Missões Asiáticas (1578-1640): Alguns Aspectos Culturais e Institucionais', trans. Bernardino Fernandes, *Revista Portuguesa de Filosofia* 54, no. 2 (1998): 195–246; 'L'insegnamento della matematica nel Collegio di S. Antão a Lisbona, 1590-1640', in *A Companhia de Jesus e a missiões no Oriente: actas do colóquio internacional promovido pela Fundação Oriente e pela revista Brotéria: Lisboa, 21 a 23 de abril de 1997*, ed. Nuno da Silva Gonçalves (Lisboa: Brotéria, 2000), 275–310; 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640'; Leitão, 'Entering Dangerous Ground: Jesuits Teaching Astrology and Chiromancy in Lisbon'; 'The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal', in *The Practice of Mathematics in Portugal: Papers from the International Meeting Held at Óbidos, 16-18 November 2000*, ed. Luís Saraiva and Henrique de Sousa Leitão (Coimbra: Imprensa da Universidade de Coimbra, 2004), 293–465; Henrique Leitão, ed., *A ciência na 'Aula da esfera' no Colégio de Santo Antão: 1590-1759* (Lisboa: Commissariado Geral das Comemorações do V Centenário do Nascimento de São Francisco Xavier, 2007).



Figure 10.2 – Tile panel on astronomy and related disciplines – room of the *Aula da Esfera*.

This other panel depicts the personification of mathematics (or astronomy, since it is crowned by a star) in her throne, surrounded by several figures holding or using related instruments such as an astrolabe, a telescope, and a globe (photo from AZlab, <https://blogazlab.wordpress.com>).⁴⁴⁶



Figure 10.3 – Overview of the room of the *Aula da Esfera* and the two previous panels.
(photo by AZlab, <https://blogazlab.wordpress.com>)

⁴⁴⁶ For a short study on this topic, see Rosário Salema De Carvalho, Samuel Gessner, and Luís Tirapicos, ‘Astronomy and “Azulejo” Panels in Portuguese Jesuit Colleges’, in *SEAC 2011 Stars and Stones: Voyages in Archaeoastronomy and Cultural Astronomy*, ed. Fernando Pimenta et al. (Oxford: Archaeopress, 2015), 314–17.

The astrological manuscripts and their authors

As the leading institution for the teaching of mathematics in Portugal, the Colégio de Santo Antão produced a large number of texts on various mathematical subjects. Most of these works exist in manuscript form as the teachers published only a very limited number of texts. Therefore, the large majority of the teaching activities of Santo Antão's mathematical classes survived in the form of class notes of their students or in the works written by its teachers, existing in more than seventy manuscripts with lessons on various topics.⁴⁴⁷

The number of surviving manuscripts from the *Aula da Esfera* is in itself a testimony of its importance, considering the usual survival rates for this type of medium, together with the harsh expropriation process to which many Jesuit archives were subjected, it can be safely assumed that a much larger quantity circulated during the seventeenth and until the mid-eighteenth century. Many of the Portuguese Jesuit materials were lost when by the end of 1759, after a steady campaign against the Jesuits, José Sebastião e Melo, later 1st Marquis of Pombal, the secretary of state for King José I, successfully suppressed the Society in the Portuguese Empire.⁴⁴⁸ This involved banishing its members, sequestering their possessions, and their active persecution. In this process the archives of Santo Antão as well as those of many other Jesuit institutions were either deliberately destroyed, lost or scattered.

Consequently, most of the surviving manuscripts from the *Aula da Esfera*, if not all, come from the private collections of former students of Santo Antão; this also accounts for their dispersal among so many archives around the country. The high rate of circulation and reuse of the material from the *Aula da Esfera* makes this identification a complex matter. Due to their private use as class notes it becomes difficult to attribute them to a specific teacher when this information is not clearly stated. Moreover, some teachers used the materials for the previous teacher in their classes, adding further doubt. These uncertainties together with a lack of records

⁴⁴⁷ The most extensive catalogue is Henrique Leitão and Lígia Martins, eds., *Sphaera mundi: a ciência na aula da esfera manuscritos científicos do Colégio de Santo Antão nas coleções da BNP* (Lisboa: Biblioteca Nacional de Portugal, 2008). Another important listing which includes privately owned manuscripts was published in Henrique Leitão, ed., *O livro científico dos séculos XV e XVI: ciências físico-matemáticas na Biblioteca Nacional* (Lisboa: Biblioteca Nacional Portugal, 2004), 745–58. However, in recent years other manuscripts have been identified and an updated revision is underway.

⁴⁴⁸ On this topic there is an immense literature. See, for example: Emanuele Colombo and Niccolò Guasti, 'The Expulsion and Suppression in Portugal and Spain: An Overview', in *The Jesuit Suppression in Global Context: Causes, Events, and Consequences*, ed. Jeffrey D. Burson and Jonathan Wright (Cambridge University Press, 2015); Christine Vogel, *Guerra aos Jesuítas: A propaganda antijesuítica do Marquês de Pombal em Portugal e na Europa* (Lisboa: Temas e Debates, 2017); Dale K. Van Kley, *Reform Catholicism and the International Suppression of the Jesuits in Enlightenment Europe* (Yale University Press, 2018), chap. 3; Francisco Malta Romeiras, 'The Pombaline Expulsion and the Building of Anti-Jesuitism', in *Jesuits and the Book of Nature* (Leiden: Brill, 2019), 23–41.

from that period and of an in-depth study of the matter creates significant gaps in the current understanding of the specifics of the *Aula*'s functioning, its teachers, and its students.⁴⁴⁹

In regard to astrology, there are presently known eight texts authored by Jesuits teaching in the *Aula da Esfera* spread out in a corpus of thirteen known manuscripts: five larger manuals on astrological practice, two smaller texts on the interpretation of comets, and a fragment or sketch of a manual. Discussed here are only texts dedicated to the exposition of astrological doctrine; texts with judgements on comets, eclipses and on other astrological configurations are not included here as they concern to the practice of astrology and not its teaching. These will be addressed in Part Four. These astrological texts were the work of at least three teachers at the *Aula da Esfera*, João Delgado, Simon Fallon and Luís Gonzaga, and a fourth author that until now has been identified as Francisco Costa. They give evidence of the teaching of astrology by Jesuits, in Portugal, for about 130 years, from the last decade of the sixteenth century to the first two decades of the eighteenth century. It is very likely that further archival research might expand this corpus, since most Portuguese astrological manuscripts are yet to be identified and catalogued. The following table lists the known manuscripts:

Table 10.1 – Known astrological manuscripts by teachers of the *Aula da Esfera*

Manuscripts with texts by João Delgado:
Madrid, Biblioteca Nacional de Espanha, MSS/8931 (fols. 130r-225v)
Lisboa, Biblioteca Nacional de Portugal, Cod. 2130
Lisboa, Biblioteca Nacional de Portugal, Cod. 6353
Manuscripts with texts until now attributed to Francisco da Costa
Lisboa, Biblioteca da Ajuda, MS 52-IX-14 (fols. 97r-107v)
London, British Library, Egerton MS 2063 (fols. 1r-19r, 25r-64v, 89r-106r, 122r-137r, 193r-v)
Manuscripts with texts by Simon Fallon
Lisboa, Biblioteca Nacional de Portugal, Cod. 2127
Lisboa, Biblioteca Nacional de Portugal, Cod. 4246
Lisboa, Biblioteca Nacional de Portugal, Cod. 4331
Lisboa, Biblioteca Nacional de Portugal, Cod. 5161
Lisboa, Biblioteca Nacional de Portugal, A.T./L. 9
Lisboa, Arquivo Nacional da Torre do Tombo, Manuscrito da Livraria 2642
Manuscripts with texts by Luís Gonzaga
Lisboa, Biblioteca da Ajuda, MS 46-VIII-22
Lisboa, Arquivo Nacional da Torre do Tombo, Manuscrito da Livraria 2132 (fols. 1r-94v)

⁴⁴⁹ For a discussion on this topic, see: Ana Cristina Silva, Lígia Martins, and Teresa Duarte Ferreira, 'Os manuscritos da «Aula da Esfera»- dúvidas e certezas', in *Sphaera mundi: a ciência na aula da esfera manuscritos científicos do Colégio de Santo Antão nas colecções da BNP*, ed. Henrique Leitão and Lígia Martins, Catálogos (Lisboa: Biblioteca Nacional de Portugal, 2008).

João Delgado's practical astrology

Born in Lagos, Portugal in 1553, Delgado was the first professor of the *Aula da Esfera* and the initiator of its long tradition in the teaching of the mathematics. He joined the Society in 1574 and travelled to Rome between 1576 and 1585. There he studied not only theology, but also mathematics under Christopher Clavius, possibly between 1580 and 1585.⁴⁵⁰ Returning to Portugal, he taught private lessons of mathematics in the Jesuit college of Coimbra (1586-1587), and in 1590 he inaugurated the mathematics class, the *Aula da Esfera*, in the college of Santo Antão in Lisbon. Because he was also the architect for the Portuguese Jesuit province, his teaching in Santo Antão was intermittent, and he was often assisted or substituted by his disciple Francisco da Costa. Delgado taught from 1590 to 1593, from 1595 to 1597, then from 1598 to 1599, and later from 1605 to 1608. It is known through the correspondence with Rome that Delgado intended to write a complete course on mathematics, having requested an assistant for this task; however, no manuscript of this work has ever been identified and no book was ever published.⁴⁵¹ He died in Coimbra on 30 September 1612.

Delgado is the author of an astrological text, written for his classes of Santo Antão. There are three known copies of this manuscript: two in Biblioteca Nacional de Portugal, Cod. 2130 and Cod. 6353, and one in Biblioteca Nacional de España, MSS/8931 (fols. 130r-225v). According to the latter manuscript these astrological classes took place from 8 January to 31 July 1607, while Cod. 2130 mentions only the year of 1607. The text does not have a definite title, but it is in all instances designated by a variation of *Astrologia pratica* ('practical astrology').⁴⁵² The text is quite extensive, and its purpose is to expound the natural effects of the planets on the elements as a knowledge that logically follows the study of the mathematical theories of planetary movement:

[Thus far] have been explained the theories and passions of the planets, which result from their movements, with Ptolemy in the *Almagest* – where that part of the superior science named astronomy is perfectly addressed, and supported by the clearest geometrical demonstrations, illustriously teaches the movements, sizes, distances, conjunctions, oppositions and other appearances of the celestial bodies. It follows that, with the same Ptolemy in the *Quadripartitum* and *Centiloquium* – if this is his, or as

⁴⁵⁰ Although this is mentioned in coeval sources, his name does not appear in the surviving records of that period. See Baldini, 'As Assistências Ibéricas Da Companhia de Jesus e a Actividade Científica Nas Missões Asiáticas (1578-1640)', 229; Baldini, 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640', 57–58.

⁴⁵¹ Baldini, 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640', 58.

⁴⁵² Namely: *Compendio Judiciario ou Astrologia practica* (Judicial compendium or practical astrology) in BNE MSS/8931; *Astrologia practica ou judiciaria* (Practical or judicial astrology) in BNP Cod. 2130; and *Astrologia practica* (Practical astrology) in BNP Cod. 6353.

Naibod and others want, of Hermes, a most celebrated astrologer of his time – we will see some knowledge of the other part which with its own name they call astrology. This, with physical or natural arguments, founded on the longstanding experimentation and diligent observation of learned men, seeks to manifest the efficacy of the planets and fixed stars, that by means of a certain sympathy or convenience, excite in the elements various changes and alterations, and also in the elemental bodies, marvellous actions, temperaments and natural inclinations, with other similar effects. Hence, we must understand that all of astrology, universally understood [i.e. astronomy and astrology], is devoted to explaining the movements of the stars, which is done by theoretical astrology, and its effects, which is proper to practical astrology.⁴⁵³

As with many authors of astrological texts, Delgado grounds his exposition on the teachings of Ptolemy. As his *Almagest* guided the students in the understanding of the movement of the celestial bodies, so the *Quadripartitum* and the *Centiloquium* directed their learning of the effects of the celestial bodies in the elemental world. To optimize his teaching of astrology Delgado divides his text into four parts or treatises. The first is dedicated to the general principles of astrology, the second to the astrological judgement of weather, the third to nativities, and the fourth to astrological judgements for medicine:

A division into four treatises seems appropriate, the first of which contains, in imitation of Ptolemy and the other astrologers, the principles of the science; the second shall deal with the judgements of the weather; the third, with the human births, of which only practical astrology speaks about, and of this only that which seems to us essential for the conservation of life and can be spoken about without reprehension and censure in regard to the divine; the fourth treatise, [shall deal with] the licit elections and required judgements for perfect medicine, intercalating some doubts and brief questions, as is our custom, because this is a more profitable way of learning than the other mute or passive way, with no kind of dispute.⁴⁵⁴

The first treatise begins with a discussion on the validity and licitness of astrology followed by the exposition of its foundational concepts. In seven chapters, Delgado addresses the zodiac, the planets, the twelve signs, the essential and accidental dignities, the aspects and the twelve

⁴⁵³ Explicadas as teóricas e paixões dos planetas que resultam dos seus movimentos com Ptholomeo no Almagesto onde perfeitamente trata daquela parta da sciencia superior chamada astronomia que estribada em sertissimas demonstrações geométricas, ilustremente ensina os movimentos, granduras, sítios, distâncias, conjunções, oposições, e outras aparencias dos corpos celestes. Seguese que com o mesmo Ptholomeu no Quadripartito e Centiloquio ou esse seja seu ou como Nabot e outros querem de Ermet astrologo celeberrimo do seu tempo, vemos algum conhecimento da outra parte a que com proprio nome chamão astrologia que com rezões fisicas ou naturaes, fundadas em diuturna experimentação e deligentes observacoes de homens doctos procura manifestar a eficácia dos planetas e estrellas fixas os quaes mediante huma certa simpatia ou conveniencia exercitão nos elementos diversas mudanças e alterações, item nos Corpos elementados, maravilhosas obras, temperamentos e naturaes inclinações com outros efeitos semelhantes. De modo que toda a astrologia em Universal entendamos que se resolve em explicar os movimentos das estrelas, que faz a theorica, e os seus efeitos, que he proprio da astrologia pratica (Delgado, *Astrologia pratica*, Proem).

⁴⁵⁴ Parece comoda divisão em quatro tratados o primeiro dos quais contenha à imitação de Ptholomeo e dos mais astrólogos, os princípios da sciencia. O segundo trate dos juízos dos tempos. O terceiro dos nacimentos humanos, de que só fala a astrologia prática; e isto quanto nos parecer necessário pera a conservação da vida e se puder dizer sem repreensão e censura do que toca ao divino. O quarto tratado das eleições licitas e juízos necessários para a perfeita medicina. Entremetendo algumas dúvidas e perguntas breves como costumamos por ser este o modo mais proveitoso para aprender que o outro mudo ou pacífico sem nenhum género de alterações (Delgado, Proem).

houses. The second treatise is divided into six chapters dealing with the forecast of the general weather conditions for the year by the study of eclipses, comets, fixed stars, and annual revolutions. In the treatise on nativities, in only three chapters, Delgado addresses the main concepts and techniques for the interpretations of a birth figure. He discusses the figures of conception and birth, rectification of the birth time, the calculation of the lord of the geniture, physiognomy, life span, directions, profections and revolutions. The last and shorter treatise presents several astrological precepts for medicine and rules for the prognostication of diseases.

Table 10.2 – Table of contents of Delgado’s *Astrologia pratica*

Chapter title	Chapter translation
[Proemio]	[Proem]
Tratado 1º. Dos prencípios da astrologia pratica	First Treatise. Of the principles of practical astrology
1ª duvida. Se he possivel saberse alguma cousa natural e scientificamente por astrologia	1 st doubt. Whether it is possible to know something naturally and scientifically with astrology
2ª duvida. Se he licito saber da astrologia	2 nd doubt. If is licit to know astrology
Cap. 1º. Da deusão do Zodiaco	Ch. 1. On the division of the Zodiac
Cap. 2º. Da natureza dos planetas	Ch. 2. Of the nature of the planets
Cap. 3º. Dos Signos Celestes	Ch. 3. On the celestial signs
Cap. 4º. Da Simpatia ou Conformidade e natureza que os planetas tem com os Signos	Ch. 4. Of the sympathy or conformity and nature that the planets have with the signs
Cap. 5º. Das dignidades accidentais dos planetas	Ch. 5. On the accidental dignities of the planets.
Pergunta acerca dos aspeitos	Question on the aspects
Cap. 6º. Das Casas Celestes	Ch. 6. Of the Celestial houses
Cap. 7º. Dalguns aduertimentos em geral	Ch. 7. Some general advertences
Tratado 2º. Dos Juizos dos tempos	Second Treatise. On the judgements of the times
Cap. 1º. Dos Juizos dos eclipses	Ch. 1. On the judgements of eclipses
Cap. 2º. Das cores das eclipses e outros sinaes que as Ratificação	Ch. 2. On the colours of the eclipses and other signs that ratify them
Digreção dos Cometas	The digression of the comets
Cap. 3º. Das Regioens e lugares sujeitos as 4 triplicidades, aos 12 Signos do Zodiaco e aos 7 planetas	Ch. 3. Of the regions and places subjected to the 4 triplicities, to the 12 sings and the 7 planets
Cap. 4º. Da natureza e efeitos das estrelas fixas	Ch. 4. Of the nature and effects of the fixed stars
Cap. 5º. De como por o zodiaco do 8º çeo se ande fazer os verdadeiros juízos	Ch. 5. How to make true judgements by the zodiac of the eight heaven
Cap. 6º. Do prencípio do Anno	Ch. 6. Of the beginning of the year
Tratado 3º. Dos naçimentos	Third treatise. Of nativities
Cap. 1º. Da fegura da Conseição e do nascimento	Ch. 1. On the figure of conception and birth
Cap. 2º. Da forma ou fegura, complexão, estatura, e qualidades corporaes do que nasce	Ch. 2. Of the form or figure, complexion, stature, and bodily qualities of the native
Cap. 3º. Do tempo em que acontecexam ao naçido algua enfermidade ou perigo della	Ch. 3. Of the time in which the native will have some infirmity or danger from it
Tratado 4º e ultimo. Pera os juízos da Medicina	Fourth and last treatise. For the judgements of Medicine
	[no individual chapters]

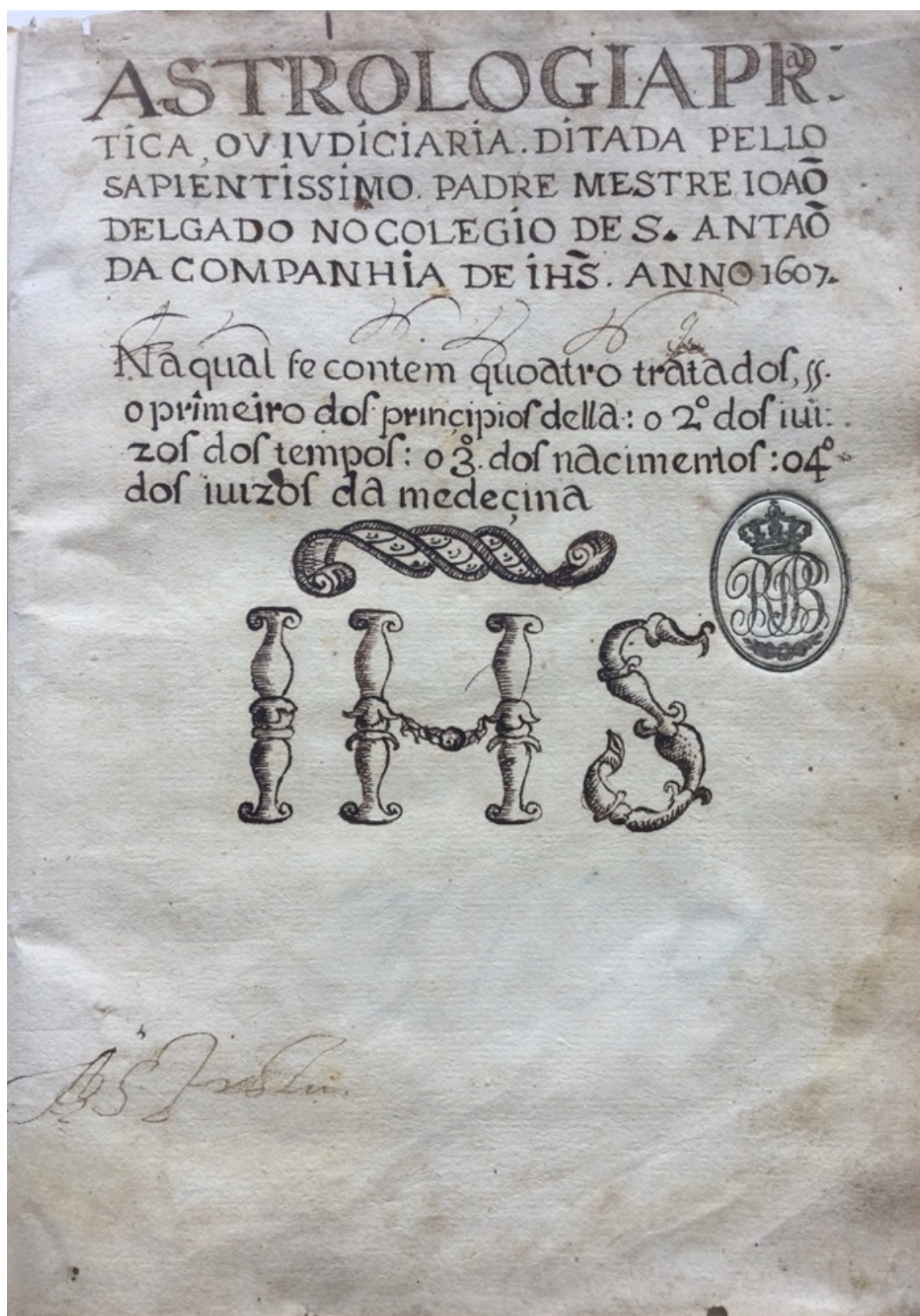


Figure 10.4 – The cover of *Astrologia pratica* by João Delgado from BNP Cod. 2130.

As a whole the course offers a very comprehensive treatment of all the licit and approved practices of astrology, directing the reader to various authorities for more detailed information. It would have exposed the students to the essential information for the practice and the necessary guidelines for further study of the discipline. The relevance of Delgado is paramount for understanding the teaching of astrology by Jesuits. First, as a disciple of Christopher Clavius, he not only brought to Portugal the new impulse for the teaching of mathematics within the Society, he also actively engaged in the teaching of astrology as an integral part of the teaching of astronomy, presenting it as an active application of astronomical and mathematical knowledge. As stated before, this fact, together with the evident acceptance of astrology as a natural part of astronomy and mathematics by Clavius, could well hint to a tradition present at the Collegio Romano, but hitherto undiscovered by historical research. Secondly, since Delgado was the first teacher and organizer of the *Aula da Esfera*, and considering the large amount of astrological material extant from this period (which will be addressed in Part Four), it can be assumed that the teaching of astrology was not an exception in the *Aula da Esfera*, but an important subject matter that was there from the very beginning. This makes astrology an essential discipline of these classes rather than an oddity. Thirdly, as the College of Santo Antônio was a hub for the Jesuit priests going to the Far East and the New World, the teaching of astrology in the *Aula da Esfera* might also have been influential to the role astrology played in the exchange of knowledge with China, Japan, as well as to its practice in Brazil.

The Egerton astrological texts

British Library, Egerton MS 2063 (henceforth Egerton 2063 or Egerton manuscript) contains three important astrological texts of Jesuit authorship. The first is *Tratado Astrologico dos Cometas* ('Astrological treatise on the comets') which deals with the nature, movement, observation and interpretation of comets. The text deals with many of the astronomical aspects of comet observation, but the last twelve sections are solely dedicated to the astrological prognostication of the effects of comets. The second text, *Astrologia Judiciaria* ('Judicial astrology') contains parts one and three of an astrological course taught in Santo Antão, dealing, respectively, with the principles of astrology and nativities.⁴⁵⁵ The third, which has never been identified before, is a small single folio text on the nature of the planets.

The attribution to Francisco da Costa

The existing literature and catalogues attribute the authorship of the first two texts to the Jesuit Francisco da Costa. Born in Pinhel, Portugal in 1567, he joined the Society around 1582. Costa studied Greek in Coimbra between 1586 and 1587, and until 1590 studied philosophy in Lisbon, having completed his theological studies in Évora between 1597 and 1602. He became an assistant to João Delgado, with whom he studied mathematics around 1591. He taught mathematics in Santo Antão on several occasions, as a substitute for Delgado, namely in 1591-1593, 1595 and 1598, becoming the appointed teacher of the *Aula da Esfera* from 1602 until his death in 1604.

There is indeed evidence that Francisco da Costa not only taught astrology at Santo Antão but also wrote texts on judicial astrology. His activities as author and teacher of astrology are mentioned in a letter of the Portuguese chief cosmographer Manuel de Figueiredo (1568-1622?).⁴⁵⁶ In it, Figueiredo replies to an unidentified person, arguing for the legitimacy of the practice of astrology. He mentions Costa when alluding to the opinions of several Portuguese religious men on this matter:

⁴⁵⁵ The Egerton manuscript is a collection of texts from Santo Antão classes. It was gathered by Francisco de Melo e Torres, a former student of the college who is responsible for many of the extant copies. A hand very similar to his appears in one of the copies of *Astrologia judiciaria* (fols. 89r-106r) as well as on other folios of the manuscript as if filling the gaps in some of the copies. In the astrological material the college is mentioned at the beginning of one of the texts, but unfortunately the author's name was left blank: 'Doctrine [by] Father Master [blank] written in the college of Santo Antão' (Doutrina P. M. [...] escrita no collegio de S. Antão), fol. 43r.

⁴⁵⁶ Lisboa, ANNT, Armário Jesuítico, liv. 19, fols. 49r-50v. Manuel de Figueiredo was mathematician and cosmographer, born the Torres Novas, and disciple of Pedro Nunes. In 1608 he became the acting chief cosmographer in substitution of João Baptista Lavanha who was occupied with other duties in Spain. In 1603 he published a famous almanac titled *Chronographia. Reportorio dos tempos* (Pedro Rodriguez, 1603); he also published works on navigation and hydrography.

While there were some reservations as to this science, it was not taught by the fathers of the Society of Jesus, as [contrariwise] taught Father Francisco da Costa in the college of Santo Antão, although not in public, but inside. And despite that in his writings he reproves of some of the ancient astrologers, the terms of astrology are all one and the same, and there are no more than seven planets, twelve celestial signs, twelve houses, and 48 constellations, and the aspects that are made in the heavens, and the same motions.⁴⁵⁷

Apparently, it was well known among the cultured elite that Francisco Costa had taught private lessons on astrology at Santo Antão and authored texts on judicial astrology, which Figueiredo had certainly read. It also provides a vital piece of information as to the status of astrology teaching in Santo Antão. In the words of Figueiredo, there was some wariness regarding the topic of astrology: it was not publicly taught in Santo Antão, only in private, at least by Francisco Costa. This period encompassed the later decades of the sixteenth century and the early years of the seventeenth century, that is, almost the two first decades of the *Aula da Esfera*. This letter must date from sometime between 1607 and 1620. Costa is mentioned in the past tense, so probably he had already died. Figueiredo died around 1620 establishing the upper limit date for this document. However, the reference to a time when astrology was not taught publicly, implies that at the time of the letter this teaching was already public, which leads to the first known public lessons by João Delgado in 1607.

Further clarification emerges on Francisco da Costa's astrological teachings when reading one of his works on the making and use of the celestial globe (*Os dois livros da fábrica e uso do globo astronomico*) included in Egerton 2063.⁴⁵⁸ Part two, chapter eleven, deals with the computation of the twelve houses, which are only used in astrology. Here he states:

This operation is used for astrology and it is the foundation for its judgements; this topic we have composed a separate treatise on this topic, separating out the many superstitions that had been added to it.⁴⁵⁹

After explaining the operation Costa ends the chapter by adding:

⁴⁵⁷ E quando ouuera algum escrupolo nesta ciencia a não incinarão os padres da companhia de Jesu como ensinou o padre Francisco da Costa no Coleio de S. Antão posto que não foi em publico senão la dentro. E ainda que nos seus escritos da iudiciaria reproue alguns astrologos antigos contudo os termos dastrologia todos são huns, não ha mais que os 7. planetas, os 12 signos celestes, as 12 cazas, e as 48 constellações, e os aspeitos *que* se fazem no çeo, e os mesmos movimentos (ANTT, Armário Jesuítico, liv. 19, fol. 50r).

⁴⁵⁸ BL, Egerton MS 2063, fols. 108r-119r. There is also a second text that can be attributed to Costa, the treatise on geography (*Tratado da Geografia* – fols. 65r-81v), of which there is also a copy in Biblioteca Nacional de Portugal, Cod. 1552, fols. 51r-110v and another in Biblioteca da Ajuda, MS 46-VIII-18. These attributions, many of which are in need of serious revision, were made by Luís Albuquerque in the first studies on the manuscripts of Santo Antão, see Albuquerque, 'A "Aula de Esfera" do Colégio de Santo Antão no Século XVII', 13–15.

⁴⁵⁹ Serve esta operação pera a Astrologia e he o fundamento de seus juizos della fizemos particular tratado separando as muitas supersticoes que se lhe tinham aiuntado (BL, Egerton MS 2063, fol. 118v).

Of the divisions [i.e. the houses] it is not our intention to deal with them here because it is something that requires more explanations, and it is somewhat complicated;⁴⁶⁰ these we shall address in their own and pertinent place which is in the judiciary [astrology], to where we refer.⁴⁶¹

Thus, in the words of Francisco da Costa himself, comes the evidence that he had written a treatise on astrology explaining the foundations of the doctrine. Considering that these lessons on the celestial globe date from July, 1602, it confirms that astrology was been taught in Santo Antão before, corroborating the statement by Figueiredo. Since the teaching on the globe was public, this reference to the lessons on astrology, suggests that these might not have been the private lessons Figueiredo mentions, but later ones already taught publicly.

Both Figueiredo's description of Francisco da Costa's writings, as well as Costa's reference to his own treatise fit quite well with the Egerton astrological texts. Yet, despite Francisco da Costa's undoubtable affiliation with the *Aula da Esfera* and the testimony of his activity as a teacher and author of astrology, the attribution of Egerton's astrological material to him stands on shaky grounds.

Revising the Egerton's texts authorship

The only text of the Egerton 2063 that can be attributed with certainty to Costa is the book on the making and use of the globe, where in the first folio is stated Francisco da Costa as the author. On the basis of this authorship, it was assumed that the remaining texts would also be by Costa; however, none of the astrological texts mentions an author. Furthermore, there is another text in Egerton 2063 clearly stated as being the work of Delgado. Dating from 1592, this text on the use of mathematical instruments (*Do uso dos instrumentos matemáticos*) is not referred to in any of the older studies of the Santo Antão manuscripts, since the Egerton manuscript has never been thoroughly studied. The existence of a text by another author in Egerton 2063 places doubt on the hasty attribution of its entire content to Costa.

Indeed, an attentive reading of the proem of the third treatise of the *Astrologia Judiciaria*, immediately dispels Francisco da Costa's authorship. Two of the texts cited were published well after Costa's death. The first is the aforementioned *Opus de virtute, et statu religionis* by Francisco Suárez, printed in 1608, and the other is the Spanish Index of 1612. This evidence strongly suggests that the *Astrologia judiciaria*, was written shortly after 1612, possibly around

⁴⁶⁰ The word used is 'embaraçada' that here can have either the meaning of technically complicated or of a sensitive topic.

⁴⁶¹ Das divisões não he nosso intento tratar aqui por ser cousa que requer mais noticia e he algum tanto embaraçada dellas trataremos em seu proprio e pertinente lugar que he na Judiciaria aonde nos remetemos (BL, Egerton MS 2063, fol. 119r).

1613 or 1614. This also excludes the possibility of João Delgado being the author of the text as he died on 30 September 1612, before the publication of the Index. Additionally, a further examination of the Egerton codex shows that the *Astrologia judiciaria* is part of a larger set of texts present in the Egerton miscellany (see Appendix III.A). These include a treatise on geography (*Tratado da Geografia*, fols. 65r-81r), one on hydrography and navigation (*Tratado da hydrographia e arte de navegar*, fols. 140r-172v), another on the sphere (*Tratado da esfera*, fols. 209r-220v), and a compendium on cosmography (*Breve compendio da cosmografia*, fols. 173r-188v). These are not only by the same hand as the astrological texts, but they also display the same type of redactions and amendments suggesting they are the original copy made by the author. The earliest dates found in these texts are 1610 and 1611 (stated on the treatise on navigation) which agree with the dating of the astrological text. The connection between all these treatises reveals that the Egerton manuscript compiles an extensive series of lessons on cosmography by the same teacher (see Appendix III.B).

Given this evidence, the authorship of the astrological texts and the cosmography programme falls on Sebastião Dias, who was the professor of the *Aula da Esfera* from 1610 to 1614. Unfortunately, there is very little information about Sebastião Dias, who until now was just an obscure figure of the *Aula da Esfera*. He was born around 1581, joined the Society in 1599 and studied philosophy and theology in Coimbra between 1604 and 1610, when he replaced João Delgado in the *Aula da Esfera* until 1614. Dias died in Coimbra in 1617.⁴⁶² Nothing is known of his education in mathematics or his skills as a mathematician and a teacher. However, if any one of these texts is by Dias, they reveal him as a competent and able mathematician.⁴⁶³

Aside from the matters of authorship, the Egerton astrological texts are extremely valuable since together with Delgado's treatise they offer a panorama of the teachings of astrology in Santo Antão at the early years of the *Aula da Esfera*, when Clavius was still active

⁴⁶² Baldini, 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640', 62.

⁴⁶³ Due to the connections between the various texts of the Egerton manuscript other possible candidates as author of the *Astrologia judiciaria* will not be considered. These are Jan Wremann (1583-1621) and Giovanni Paolo Lembo (1570 or 1578-1618) whose activities in Lisbon fall close to the period established by the citation of the Index (1612). Wremann was not a professor at the *Aula da Esfera*, but he is known to have taught a private course in Lisbon, in 1614, before departing to Macau. He studied with Clavius and his knowledge was praised by his contemporaries, but like Sebastião Dias, there are no known writings of him except a letter written to Magini in 1608 (Baldini, 62–63, 86.). Lembo taught the *Aula da Esfera* in 1615 and 1616, a little late for the range of dates considered. Despite being known as one of the signatories, together with Clavius, of the report to Cardinal Bellarmine regarding the observations of Galileo, his only known work is from a manuscript containing some of his classes in Lisbon: Arquivo Nacional da Torre do Tombo, Manuscrito da Livraria, 1770 (Baldini, 63.)

in Rome and Jesuit mathematical teaching was in full bloom. They will now be described in more detail.

The treatise on astrology

Astrologia judiciaria is the longest astrological text on Egerton 2063. As mentioned above, it only contains the copies of the first treatise, on general principles, and of the third, on nativities, but according to the opening paragraphs this work was divided into four treatises:

Before entering and descending into the particulars of this matter it will be convenient to declare what is our intention in this work. And let it be no other than to address and show two astrologies: one true and safer, of which the wise and the cautious may make use; another vain, false, and abominable that is usually used by the ignorant without science and consciousness, that no threat of censorship and punishment dissuades them from such [practice] which is profane and undignified for men. Because, of the causes that the astrologers usually engage with, some are universal and general, and others particular and personal, and both one and the other in many different ways, it will be good that we make four treatises according to them. The first on the principles of astrology, such as the natures and virtues of the natural and superior causes, planets and stars in the manner made by Ptolemy in his *Quadripartitum*. The second treatise will be on the astrology to which belongs the judgement of weather, the changes in the air, calm periods, storms, and rains, winds; and this in two manners, as we shall further see in its proper place. The third on the astrology of births, such as inclinations of the native by virtue and strength of the stars, sickness, etc. The fourth on elections, for medicine as well as navigation, and especially for all kinds of agriculture. The fourth will declare what should be admissible and what should be dismissed, approving and sanctioning with reasoning that which is good and reproofing with the same reasoning the bad and profane.⁴⁶⁴

It is not clear if treatise two, on astrological weather forecasting, and treatise four, on elections, were ever written, but there are strong indications that they did exist.⁴⁶⁵ The opening words of the third treatise allude to the second, and in chapter two there is a reference to a method of calculating the duration of the effects of an eclipse that was taught in the second treatise.

⁴⁶⁴ Primeiro que entremos, e decamos ao particular desta matéria, será conveniente que declaremos qual seja nosso intento nesta obra: e não seja outro que tratar, e mostrar duas astrologias huma verdadeira e mais segura; de que podem usar os sabios e timoratos; outra vam, falsa, e abominavel de que costumão usar os ignorantes sem sciencia, e consciência, sem aver ameaça de censuras, e castigos, que de cousa tam profana, e indigna de todo homem os possa apartar. E como as causas de que os astrólogos costumão tratar sejam humas uniuersais e gerais e outras particulares, e pessoais, e assj humas como outras de diverso modo, sera bem fasermos IV tratados, conforme a ellas, o primeiro dos princípios da astrologia, como naturezas e virtudes das causas naturais, e superiores, planetas e estrellas da maneira que o fez Ptolomeu no seu quadripartito. O 2.º tratado sera da astrologia que pertence ao juizo dos tempos, mudanças do ar, serenidades, tempestades, e chuvas, ventos, e isto em 2 maneiras como mais em seu lugar veremos. O 3.º da astrologia de nascimentos, como inclinações do nascido por virtude, e força das estrellas, doenças, etc. O 4.º das eleições, assi para a medicina, como para navegações, e muito mais para toda a sorte da agricultura. O 4.º seja declarar o que neste primeiro se deve admitir do dito, e o que se deue dexar, aprouando, e confirmando com rezões o bom, e reprouando com as mesmas o mao, e profano (Dias, *Astrologia judiciaria*, introduction).

⁴⁶⁵ Since there are many astrological texts still to identify in Portuguese libraries, it is possible that in future research a copy of these two texts may be found.

There are two different copies of the first treatise: the first on fols. 25r-42v, and the second on fols. 43r-58r. The third treatise appears in three different copies, fols. 58r-64v; 89r-106r; 122r-137r. Three distinct hands can be identified: one on fols. 25r-42v and in 122r-137r; a second on fols. 43r-58r and 58r-64v; and a third on fols. 89r-106r. The most relevant of these copies are those by the first hand, proposed above to be that of Sebastião Dias. Both copies (principles and nativities) present sections of crossed-out text, amendments and side notes that are fully incorporated in the other two copies. As stated before, this suggests that they are probably the author's first version accompanied by later copies. This is also corroborated by the type of paper used in the first version, which appears to be much older than the one used in the other copies. The hand of the first version appears to be the same as that of the other two astrological texts: the treatise on comets, which contains the same type of side notes and amendments, and of the single astrological folio (193r-v) that appears in the middle of the Egerton miscellany.

The *Astrologia judiciaria* is very similar in structure to the *Astrologia practica* of João Delgado, although the astrological doctrine is presented in a different form. The first treatise, 'On the principles of astrology' ('dos principios da Astrologia') contains fourteen chapters. The first three address the definition and the validity of astrology, chapters four to seven deal with the planets, their natures, and essential and accidental conditions; chapters eight to eleven with the zodiac and the twelve signs, chapters twelve and thirteen with the fixed stars, and the final chapter, fourteen, with the celestial houses. The last chapter is incomplete and one of the copies states that 'on this subject there was no more dictation' ('Desta materia não se ditou mais').⁴⁶⁶ The third treatise, on nativities ('Dos nascimentos'), is composed of eleven chapters. The first four deal with the figure of birth and of conception and the various strictures and concepts regarding them. The fifth deals with rectification of the birth figure, and the last six address several rules of interpretation such as the planetary ruler of the nativity, life span, physiognomy, and the forecast of sickness (see Table 10.3)

⁴⁶⁶ BL, Egerton 2063, fol. 58r. This note shows that the teacher read out his text and the student wrote it down, word for word.

Table 10.3 – Table of contents of Egerton’s *Astrologia iudiciaria*

Chapter original title	Chapter translation
Tratado primeiro, dos princípios da Astrologia	First treatise. On the principles of Astrology
Cap. 1º. Que cousa seja astrologia, e como se distingue da astronomia.	Ch. 1. What is astrology, and how it is different from astronomy
Cap. 2. Se se pode saber alguma cousa por astrologia.	Ch. 2. If anything can be known through astrology
Cap. 3. Se he licito levantar figura, e de que cousas se pode levantar, e que cousas não.	Ch. 3. If it is licit to erect a figure, and for which things it is licit to erect one, and for which things it is not
Cap. 4. Dos planetas, e em particular da sua natureza.	Ch. 4. On the planets, and mainly their natures
Cap. 5. Dos efeitos que costumão causar os planetas.	Ch. 5. On the effects the planets usually cause
Cap. 6. Das dignidades essenciaes dos planetas.	Ch. 6. On the essential dignities of the planets
Cap. 7. Das dignidades accidentais dos planetas.	Ch. 7. On the accidental dignities of the planets
Cap. 8. Dos signos do zodíaco, e em particular de suas naturezas.	Ch. 8. On the signs of the zodiac, and their natures in particular
Cap. 9. De algumas divisões do zodíaco. Divisão segundo os quatro tempos do ano. Divisão dos signos moveis, fixos, e communs	Ch. 9. On some divisions of the zodiac. According to the four times of the year. The division of the mobile, fixed, and common.
Cap. 10. Doutras duas divisões dos signos.	Ch. 10. On other two division of the signs
Cap. 11. Dos signos imperantes e obedientes, e dos signos rectos e oblíquos ou antícios.	Ch. 11. On the commanding and obeying signs, and of the right and oblique signs or antiscia
Cap. 12. Da natureza e qualidade das estrelas mais importantes que se achão nos 12 signos. E seus efeitos.	Ch. 12. On the nature and quality of the most important stars of the 12 signs, and their effects
Cap. 13. Das outras estellas fixas.	Ch. 13. On the other fixed stars
Cap. 14. Diuisam das cazas celestes.	Ch. 14. The division of the celestial houses
[Tratado segundo, dos juizos dos tempos]	[Second treatise, of the judgement of times]
[lost]	[lost]
Tratado terceiro, dos nascimentos	Third treatise, on nativities
Cap. 1: Da figura da concepção e dos nascimentos.	Ch. 1. On the figure of conception and of nativities
Cap. 2: Como pelo tempo do nascimento se poderá vir em conhecimento da concepção.	Ch. 2. How to the time of birth can be known through the time of conception
Cap. 3: Da alfridaria ou governo do planeta.	Ch. 3. On firdaria or planetary rulership
Cap. 4: Do juízo que se formará acerca dos efeitos dos planetas na concepção da criança.	Ch. 4. On the judgement made on the effects of the planets in the conception of the child
Cap. 5: Como se rectificará a figura do nascimento.	Ch. 5. How to rectify the figure of birth
Cap. 6: Do almutem ou Senhor do nascimento.	Ch. 6. On the almutem or lord of birth
Cap. 7: Do Hilec e Alcochodem.	Ch. 7. On the hyleg and the alcocodem
Cap. 8: Da forma, figura, composição, estatura e qualidades corporais do que nasce.	Ch. 8. On the form, figure, composition, stature and corporeal qualities of the native
Cap. 9: Da «filosomia» do nascido, a saber, formas, figura e estatura, etc.	Ch. 9. On the physiognomy of the native, the knowledge of forms, figure and stature, etc.
Cap. 10: De algumas coisas que deveriam respeitar nos juízos da «filosomia».	Ch. 10. On some things to be respected in the judgements of physiognomy
Cap. 11: De algumas regras para o juízo das enfermidades.	Ch. 11. On some rules for the judgement of infirmities
[Tratado quarto, das eleições]	[Fourth treatise. On elections]
[lost]	[lost]

Until very recently the only known copies of this text were those in the Egerton manuscript; however, in the course of this research another copy of the first treatise was identified in Biblioteca da Ajuda, MS 52-IX-14, fols. 97r-107v, dating from the second decade of the seventeenth century. Despite being only a fragment of ten folia containing part of chapter seven, and chapters eight and nine in full, it shows the text had some circulation, apparently more limited than Delgado's treatise, whose three surviving complete copies hint at a more widespread circulation.

The astrological treatise on the comets

The second largest astrological text in the Egerton manuscript, the *Tratado astrologico dos cometas* (fols. 1r-19r), is a complete work on the observation, measurement and interpretation of comets. Notwithstanding its rich astronomical content concerning the observation and measurement of the position and movement of a comet, it is clear that its main purpose is the interpretation of its effects. The astronomical and astrological content is interwoven in the various chapters (called 'titles' in the original). The last section of the treatise (chapters fourteenth to twenty-five) is solely concerned with astrological interpretation. The Egerton manuscript contains the only known copy of this text.⁴⁶⁷

Table 10.4 – Chapters (titles) of the astrological treatise on comets

Chapter original title	Chapter translation
Da grandeza, longitud e lugar verdadeiro do Cometa. Tratado astrológico dos cometas. Que coisa seja cometa e como se geram. Título primeiro	On the size, longitude and true place of the comet. Astrological treatise on the comets Tit. 1. What kind of thing a comet is and how it is generated
Do mouimento dos cometas. Título segundo.	Tit. 2. On the movement of the comets
Do tempo e lugar em que se geram. Título terceiro.	Tit. 3. On the time and place where they are generated
Da variedade que ha de cometas. Título quarto.	Tit. 4. On the variety of comets
Da diversidade e da vista do cometa. Título quinto.	Tit. 5. On the diversity and appearance of the comet
Como se saberá a diversidade da vista do cometa no círculo de altura. Tit. 6.	Tit. 6. How the diversity of the observation of the comet in the circle of altitude will be known
Como se saberá o lugar verdadeiro do cometa na eclíptica com ajuda de algum instrumento. Título 7º.	Tit. 7. How it the true place of the comet in the ecliptic will be known with the assistance of an instrument
Do lugar aparente ou uiso. Título oitauo.	Tit. 8. On the apparent place or sighting
Como se saberá a diversidade da uista que o cometa tem em sua longitude. Título nono.	Tit. 9. How the various observations that the comet has in its longitude will be known
Como se conhecera a latitude aparente do cometa, se alguma houver. Título decimo.	Tit. 10. How will be know the apparent latitude of the comet should it have any
Como se conhecera a distancia do cometa do centro do mundo e do centro da vista. Título undecimo.	Tit. 11. How the distance of the comet from the centre of the world and the centre of observation will be known.

⁴⁶⁷ A study of this text and a partial transcription, albeit without the astrological sections and presenting some errors, can be found in the dissertation of Mário Simões Fernandes, 'A Companhia de Jesus e o saber astronómico em Portugal nos séculos XVI e XVII: as teorias dos cometas' (Lisboa, Universidade de Lisboa - Faculdade de Letras, 2017), 482–98, <http://repositorio.ul.pt/handle/10451/28718>.

Como se sabera a grandeza o tamanho do cometa. Titulo doze.	Tit. 12. How the largeness or size of the comet will be known.
Se o cometa tiver cauda, como se sabera seu comprimento e grossura. Titulo treze.	Tit. 13. If the comet has a tail, how its length and thickness will be known.
Perguntase se os cometas são sinais ou causas de Pestes fomes e guerras. Titulo quatorze.	Tit. 14. It is asked if the comets are signs or causes of plague, famine and war.
Como se ha de prognosticar pollos cornetas. Titulo quinze.	Tit. 15. How to prognosticate by means of the comets.
Das significações dos cometas em os 12 signos. Titulo dezaseis.	Tit. 16. The meanings of the comets in the 12 signs.
Dos pronosticos dos cometas conforme aos planetas predominantes. Titulo 17.	Tit. 17. On the prognostication of the comets according to the predominant planets
Do Cometa saturnino. Titulo 18.	Tit. 18. On the comet of Saturn.
Do Cometa do predomínio de [Júpiter]. Titulo 19.	Tit. 19. On the comet of Jupiter.
Do Cometa de [Marte]. Titulo 20.	Tit. 20. On the comet of Mars.
Do Cometa Solar. Titulo 21.	Tit. 21. On the comet of the Sun.
Do Cometa de Vénus. Titulo 22.	Tit. 22. On the comet of Venus.
Do Cometa Mercurial. Titulo 23.	Tit. 23. On the comet of Mercury.
Do Cometa Lunar. Titulo 24.	Tit. 24. On the comet of the Moon.
Das exaltações dos Cometas sobre as estrelas erráticas, e suas significações. Titulo vintecinco.	Tit. 25. On the exaltations of the comets over the errant stars and their meanings.

Folio on the nature of the planets

This separate folio (fol. 193r-v) that does not belong to any of the other texts contains the first chapters of a section of a different text on astrology. Its title is ‘1st Division. Of the planets, in which is exposed their natures, complexions, qualities and effects, as other more properties’ (Divisam 1^a. Dos planetas em que se trata de suas naturezas, compreições, qualidades e effeitos com outras propriedades mais). It is composed of five small chapters presented in the table below.

Table 10.5 – Contents of Egerton fol. 193r-v

Chapter original title	Chapter translation
Cap. 1. Natureza dos planetas.	1. Nature of the planets
Cap. 2. Planetas semelhantes.	2. Planets which are similar
Cap 3. Planetas fortunas, e infortunas, maior, e menor.	3. Fortunate and unfortunate planets, greater and smaller
Cap. 4. Se os planetas que são infortunas podem vir a ser fortunas.	4. If the unfortunate planets can become fortunate
Cap. 5. Se podem os planetas que são fortunas vir a ser infortunas.	5. If the planets which are fortunate can become unfortunate

An attentive reading of these notes reveals them to be in fact a draft version of another work. Not only are they very succinct and brief, but they are also composed with instructions or reminders of what is to be written. For example, at the very opening of chapter five the author states that ‘This chapter will be placed before the last; and let it be as follows ...’ (‘Este capitolo se porá primeiro que o passado; E seja da maneira seguinte ...’). However, the most noticeable

indication that this is a draft version is a side note on the top right of the folio where the author lists the structure for an astrological manual:

The first chapter can address if anything can be known by judicial astrology about the future

Second chapter: if astrology is licit and which [kind]

Chapter three: If [regarding] nativities, judicial [astrology] is licit, as well as the erection of the nativity figure

All these chapters can be under the first division, or distinction or dictation. And of the subject and division.

Afterwards, the second division can be on the planets, but first it will be addressed which of the celestial bodies is more effective, the fixed or the errant, chapter one, and then of the natures of the planets, chapter two, etc.

And at the end let another chapter be made: of all the planets which is more effective, and I will immediately consider this to be the Sun, the Moon, and afterwards the three superiors.

And of the stars, which are more effective, and it will be found [to be] those of the zodiac, and why those of the North or of those of the South.⁴⁶⁸

This sketch is immediately evocative of the structure of Egerton's *Astrologia judiciaria*, which begins with a discussion of the validity of astrology followed by a chapter on the nature of the planets and their effects. It also mirrors closely the first treatise of João Delgado's *Astrologia practica*, which begins in a similar manner and ends with the chapter titled 'on some general advertences' ('Dalguns advertimentos em geral') which considered the effectiveness of the planets and of the fixed stars. A comparison of the text on this folio with these two works shows the same wording appearing in chapter four of the Egerton text, on the nature of the planets, as well as in chapter two of Delgado's first treatise. This similarity is not unexpected. Not only the explanation of these concepts is quite standard in any astrological book, but also Sebastião Dias probably learned with Delgado, whom he substituted in his initial year, and likely used his materials as a base for his own lessons.

Once again, irrespective of the matters of authorship, the Egerton texts provide an excellent example of the type of material being taught in Santo Antão's astrological courses during the first decades of the *Aula da Esfera*. In fact, the small note on this single folio could well be the testimony of the planning of an astrological curriculum for the *Aula da Esfera*.

⁴⁶⁸ Pode ser 1º cap. se se pode saber per astrologia judiciaria alguma cousa dos futuros. 2º cap. se he licita a astrologia, e qual. Cap. 3. Se dos nascimentos he licita a judiciaria, e assi o aleuantar figura dos nascimentos. Todos estes capítulos podem estar debaxo da primeira divisam, ou distincam ou diccam. E do sojeito, e divisam. Depois a 2ª divisam pode ser dos planetas, mas trata-se primeiro quais dos astros são mais efficaes, os fixos ou os errantes. cap. 1. e depois das naturezas dos planetas. cap 2. etc. E no cabo se faca outro cap. qual de todos os planetas he mais eficaz, e logo ponderei, ser o ☉, ☽, depois os 3 superiores. E das estrellas quais mais efficaes, e acharse-las que as do Zodiaco e porque as da parte boreal, ou as do Sul (Egerton 2063, fol. 193r).

Simon Fallon's judicial astrology

Simon Fallon, also known by the Portuguese version of his name, Simão Falónio, was born in Galway, Ireland around 1604. There is no detailed information on his life or his studies, apart from that he entered the Society in 1619 and studied in Coimbra and Évora. Between 1627 and 1633 he taught a mathematical course in at the College of Coimbra and was the teacher of the *Aula da Esfera* at Santo Antão from 1638 until 1640 when, in the wake of the Portuguese Restoration, he was appointed superintendent of the kingdom's fortifications. He died in Lisbon in 1642.

The treatise on practical astrology

Simon Fallon is the author of two astrological texts derived from his teachings in Coimbra and Lisbon. The first text, *Astrologia pratica* (practical astrology), was written when he was in Coimbra, almost a decade before he became the teacher of the *Aula da Esfera*. There is only one known copy of this text: Biblioteca Nacional de Portugal, Cod. 2127, *Materias mathematicas nas quais se contem astronometria, astrologia, outronometria* (Mathematical materials containing astrometry, astrology, and other measurements). This manuscript contains lessons by Fallon on various astronomical and mathematical topics.⁴⁶⁹ The text titled *Astrologia pratica* (fols. 86r-177v) was the result of a class by Fallon in 1630-1631, as the date of 1631 appears at the end. It follows a text entitled *Astrometria*, divided into three sections addressing topics like spherical geometry, fixed stars, celestial houses (including their definition, interpretation and calculation), constellations and several other astronomical subjects; this text possibly dates from 1628 (fols. 1-85).⁴⁷⁰ These teachings preceded the course on astrology, since he presents the discipline of practical astrology as the end result of this first section theoretical astronomy:

With reason the great mathematician in the chronicle, second book on geometry, first chapter, equated the practices and practical sciences to the application and the

⁴⁶⁹ Unfortunately, the manuscript has a very difficult hand and is full of small errors in spelling and grammar even for the standards of that period, making it difficult to understand certain passages.

⁴⁷⁰ There has been some discussion as to the dating of the texts in this manuscript. The cover pages states that these materials were dictated by Father Simon Fallon in the year of 1628 (Dictadas pelo R. P. M. Symão Falonio; Escriptas por Ant[oni]o de Melo. - Anno de 1628). It was assumed that this would be a manuscript from the *Aula da Esfera*, as the scribe was one of its known students. Since Fallon was not the professor at this time, the date on the cover would be an error and should read 1638. On this discussion see: Albuquerque, 'A "Aula de Esfera" do Colégio de Santo Antão no Século XVII', 18 ; Baldini, 'The Portuguese Assistancy of the Society of Jesus and Scientific Activities in Its Asian Missions until 1640', 65. However, in the example for the calculation of an astrological figure, Fallon uses the date of 21 of May of 1630 which is in accord with the date at the end of the practical astrology text, 1631. For example, in his later manuscript Fallon uses as example the date of 24 January 1639, which is in accordance with the dating of the text. Thus, the material in this manuscript must be from classes given between 1628 and 1631, while he was in Coimbra.

accomplishments of the speculative [sciences], because in the same way as trees, whose freshness pleases our sight, and lifts our eyes, what we see of the sciences is [likewise] pleasing, and they are the most beautiful trees of human understanding. However, not all bear fruit, as can be seen in the speculative [sciences] which appear to be planted in the soft meadow of understanding [just] for freshness and fine appearance rather than to bear fruit. This [fruit] is copiously reaped in the exercise of the practical sciences. What better tree can [there be] other than astrometry, that has up to now detained us with its three most delightful branches and has occupied us for so long in contemplation. Hence, the fruits of astrometry, [i.e.] speculative astronomy, we will harvest in this subject matter that, for this reason, we call practical astrology, and that with divine favour are so soft [and delicious] that at their sight the former trials [of astrometry] will fade away.⁴⁷¹

In his colourful and poetical wording, Fallon straightforwardly states that it is in practical astrology that the knowledge obtained through astronomy can be applied and gain its purpose; otherwise, it becomes just an embellishment for the intellect. Thus, here, in his view, astrology becomes the chief reason for the study of astronomy.

The *Astrologia pratica* offers a complete course on astrology, more detailed than Delgado's and the one in the Egerton manuscript, but for the most part still within the same astrological lineage. Taking the same traditional approach used by his colleagues, Fallon divides the text into three treatises, which are preceded by an introduction discussing the licitness of astrology:

The order by which these fruits of practical astrology shall be picked will be the same that we kept in astrometry, and the one that Ptolemy followed [in the] *Quadripartitum* and *Centiloquium*, [as well as] Alcabitiu, Francesco Junctini, Valentin Naibod, and the common judiciary [astrologer]. It will be fulfilled in three treatises. In the first I will present the principles and whatever more constitutes this science, such as are the natures and unmixed influences of the stars and planets, and other natural causes. In the second we shall see the astrology which belongs to the judgement of the weather, changes in the air, storms, calm weather, rains, and similar things. And [then] the timorous astrology to which belong the births and inclinations of the native. And how this is to be understood and separated from false and abominable astrology which is used by some ignorant men and those unable of science, which are in truth without consciousness, that even under threat of ecclesiastic censure, neither the fear human nor divine punishment can separate them from such profane cause, unworthy for any men.⁴⁷²

⁴⁷¹ Com Rezão o grande Matematico en cronica Lib. 2º de geometria cap. 1º conparou as praxes e sciências praticas aos uzos, e feitos das especulatiuas porque asim como nas aruores Posto que sua frescura nos sacie a uista, e em leuar os olhos toauia o feito he o que uemos da ogosto das sciencias são aruores fermoziçimas o entendimento humano. Porem nem todas dão fructo como se ue nas espelculatiuas que mais parecem Plantadas no ameno prado do entendimento para frescura, e bem parecer que para fruto, o qual se colhe cupioziçimo no exercicio das sciencias praticas. que aruor em mais para leuar a Astrometria de que tratamos athe agora que com aqueles seus 3 ramos tão aprazíveis nos deteue, e em leuar tanto tempo em sua contemplação. Os frutos pois da Astrometria, Astronomia especulatiua colheremos nesta materia que por isso imtitulamos Astrologia pratica e com o fauor divino são tão suaueis que a uista delles dezaparcirão os trabalhos pasados (Fallon, *Astrologia pratica*, Cod. 2127, fol. 86r).

⁴⁷² A ordem de colher estes frutos da Astrologia Pratica sera a mesma que guardamos na Astrometria e a que seguio Tholomeu quadripartito, e semtiloquio, alcabicio, Francisco Juntino, ualentim nabot, ho comum dos judiciarios. Em 3 Tratados se rezoluera no 1º farei os principios e mais de que consta esta sciencia como são as naturezas, e influencias cincerzas das estrellas, E Planetas, e mais cauzas naturais no 2º ueremos a astrologia que pretença ao iuizo dos tempos mudanças do ar,

This division and wording are of course evocative of the previous texts, and when it comes to nativities there is, as always, a distinction between the true astrology and the false. Thus after a proem containing a question replied to in four sections, Fallon begins a systematic exposition of astrological doctrine in three parts by addressing first the fixed stars and the zodiac (in five sections); the second division presents a discussion on the planets which includes their natures, essential and accidental dignities, planetary hours, and planetary combinations (seven sections); then he addresses the twelve houses and the calculation of the astrological figure (four sections), followed by the presentation of several fundamental concepts for the interpretation of nativity charts, such as the almutem or lord of the figure, and regarding lifespan and medicine, as well as the Lot of Fortune and the lunar nodes (five sections). The second treatise, on weather forecasting, is divided into two parts, where are discussed the precepts of weather forecasting, eclipses, comets in the first (in four sections) and the revolutions of the year, techniques for monthly and daily forecast, and winds in the second (five sections); this treatise appears incomplete, since it breaks off in the middle of a paragraph. Furthermore, the introduction mentions three parts, but in the manuscript, there are only two. The last treatise, likely the intended third, on nativities, is comprised of eight sections dealing with the birth time, rectification by directions, the lord of the figure, and the judgements of the native's life, temperament, health, events and physiognomy.

Table 10.6 – Contents of *Astrologia pratica* by Fallon

Chapter title	Chapter translation
Proemio	Proem
Questão premial. Da erezia nesecidade e proueiros da astrologia pratica	Proemial question. Of heresy, necessity and uses of practical astrology
Secção 1 ^a . Que couza seja a astrologia pratica qual seu oubugeto, e como se destige da Astronometria.	Section 1. What kind of thing practical astrology is, what its object is, and how it is different from astrometry
Secção 2 ^a . Se Astrologia Pratica he sciência	Sec. 2. If practical astrology is a science
Secção 3 ^a . Se he licita a astrologia pratica	Sec. 3. If practical astrology is licit
Secção 4 ^a . Da necesidade e proueito da Astrologia pratica	Sec. 4. Of the need and usefulness of practical astrology
Tratado 1^o. Dos Pricípios Geraes da Astrologia pratica	First treatise. Of the general principles of practical astrology
Proemio	Proem
Disputada 1 ^a . Do conhecimento das estrelas Fixas nesecarias pera a Astrologia	1 st disputation. Of the knowledge of the fixed stars needed for astrology.
Secção 1 ^a . Das deuesois principais do Zodiaco.	Sec. 1. Of the main divisions of the zodiac.
Secção 2 ^a . Das naturezas, calidades e influencia dos sinos celestes	Sec. 2. Of the nature, qualities and influence of the celestial signs.

tempestades serinidades chuvas, e couzas semelhantes e timorata astrologia que pretençe aos nacimentos e inclinacoes do nacido e quanto esta se entende e como se destingue da falça e abominauel Astrologia de que costumão uzar alguns inorantes e incapas de sciência mas na uerdade sem consiença e em auer ameaça de sensuras eclesiasticas nem temor de castigo humano ou deuino que de cauza tão profana e indigna de todo o homem os poça apartar (Fallon, *Astrologia pratica*, Cod. 2127, fol. 86r-v).

Secção 3ª. Qual seja a natureza e essencia? das mais estrellas fixas

Secção 4ª. Da Eficacia que os diuerços aspectos cauão nas estrellas, e sinos celestes

Secção 5ª. Se as estrellas se ão de regular plo Zodiaco tabular ou pelo ceo estrelado.

Disputada 2ª. Do conhecimento dos Planetas necessário pera a Astrologia pratica.

Secção 1ª. Do nº. e grandeza, ordem e periodos dos planetas.

Secção 2ª. Da natureza e Planetas em comcion [sic].

Secção 3ª. Da influencias particulares de cada planeta.

Secção 4ª. Das dignidades essenciais dos Planetas.

Secção 5ª. Das dignidades accidentais dos Planetas.

Secção 6ª. Dos dias e horas em que reinão os Planetas.

Secção 7ª. Das comiuncois principais dos Planetas.

Disputada 3ª. Das cazas selestes etc.

Secção 1ª. Do nº e circulo? que costetuem as cazas selestes.

Secção 2ª. Da natureza e influencia das cazas celestes.

Secção 3ª. Do domínio que tem os Planetas em as cazas celestes.

Secção 4ª. Como se aleuantara huam fegura a qualquer hora.

Secção 5ª. Dignidades da figura celeste.

O Almutem ou senhor da figura

Lugares Apheticos na figura

Apheta ou hylech na figura

Alchocodem na figura

Anos que prometem os planetas sendo Alchocodem

Lugares anaturetas [sic] na figura

Sorte ou parte da furtuna

Cabeça e cauda do dargam na figura

Tratado 2º. Da Astrologia pratica. Para os luizos dos tempos

Proemio

Disputad 1ª. Das Causas oneuersais de que depende o juízo dos tempos.

Secção 1ª. Asinase algumas causa huniuersais a que os antigos atribuirão as mudansas dos tempos.

Secção 2ª. Com sinificação os eclipses as mudanças geraes do tempo.

Secção 3ª. Que couza sejam Eclipses, como se fazem e observão

Da significasom dos eclipses

Secção 4ª. Como cauza e sinigiquam os cometas mudanças de tempo

Disputada. 2ª. Das cauzas particulares das mudansas do tempo

Secção 1ª. Das mudansas que no tempo cazão o senhor do ano.

Secção 2ª. O que pronosticão os Planetas sendo senhores do anno.

Secção 3ª. Das mudanças particulares dos mezes do anno.

Secção 4ª. Das mudanças do Ar em cada dia.

Sec. 3. What is the nature and essence of the other fixed stars.

Sec. 4. Of the effectiveness that the various aspects cause in the stars and celestial signs.

Sec. 5. If the stars must be measured by the table zodiac [tropical zodiac] or by the starry sky [the firmament]

2nd disputation. Of the knowledge of the planets needed for practical astrology.

Sec. 1. Of the number, size, order and periods of the planets.

Sec. 2. Of the nature and planets in conjunction.

Sec. 3. Of the particular influences of each planet.

Sec. 4. Of the essential dignities of the planets.

Sec. 5. Of the accidental dignities of the planets.

Sec. 6. Of the days and hours in which the planets rule.

Sec. 7. Of the main conjunctions of the planets.

3rd disputation. Of the celestial houses, etc.

Sec. 1. Of the number and circle which constitute the celestial houses.

Sec. 2. Of the nature and influence of the celestial houses.

Sec. 3. Of the lordship that the planets have in the celestial houses.

Sec. 4. How to erect a figure at any given time

Sec. 5. Dignities of the celestial figure.

The almutem of the lord of the figure.

The aphetic places of the figure

The apheta or hilech in the figure

The alcocodem in the figure

Years promised by the planets when they are alcocodem.

The anaretic places in the figure

The Luck or Lot of Fortune in the figure

Head and tail of the dragon in the figure.

Second treatise. Of the practical astrology for the judgement of the times

Proem

1st disputation. Of the universal causes of which is dependant the judgement of the times.

Sec. 1. Some universal causes the ancients attributed to changes in the weather.

Sec. 2. How the eclipses signify general changes in the weather.

Sec. 3. What manner of thing are eclipses, how they are made and observed

Of the meaning of the eclipses.

Sec. 4. How the comets are caused and what they signify in the changes of weather.

2nd disputation. Of the particular causes of the changes in weather.

Sec. 1. Of the changes that the Lord of the Year causes in the weather.

Sec. 2. What the planets prognosticate when they are the Lords of the Year.

Sec. 3. Of the particular changes in the months of the year.

Sec. 4. Of the changes of the air on each day.

Secção 5ª. Das mudanças que os uentos cazão em o Ar.

[Tratado 3º. Dos nascimentos]

Secção 1ª. A que tempo se aleuantara a figura do nascimento.

Secção 2ª. Das direccoins.

Secção 3ª. Como se colhera o senhor da figura em hum movimento.

Sessão 4ª. Como se iulgara da uida do nacido.

Secção 5ª. Como se iulgara da estatura e temperamento do nacido.

Secção 6ª. Como se iulgara das infermidades do nacido.

Secção 7ª. Como se iulgara dos mais aci[d]entes e efeitos do nacido.

Secção 8ª. Do Juizo que se pode fazer da philozomia do nacido.

Sec. 5. Of the changes that the winds cause in the air.

[Third treatise. On nativities]

Sec. 1. At what time the figure of birth should be erected.

Sec. 2. On directions

Sec. 3. How is obtained the lord of the figure in one movement.

Sec. 4. How to judge the life of the native

Sec. 5. How to judge the stature and temperament of the native

Sec. 6. How to judge the illnesses of the native.

Sec. 7. How to judge the other accidents and effects of the native

Sec. 8. The judgement that can be done of the native's physiognomy.

The astrologia judiciaria

The second astrological text by Fallon, more extensive, derives from his teaching at the *Aula da Esfera* in 1639. This course appears to have been quite popular, since it survives in at least five known copies titled *Astrologia judiciaria* ('judicial astrology'). It is a development of the *Astrologia pratica* and follows the same arrangement, with a few differences and additions. It is organized in six parts: an introduction and defence of astrology, entitled 'Proemial question', and five treatises. The first treatise, 'On the celestial figure', teaches in five chapters, and in great detail, the various methods for calculating an astrological chart or figure. The second, 'On the general principles from which the astrological judgement is taken', presents the usual foundations of astrological doctrine in four chapters. The third deals with the astrological prognostication of the weather; it is divided into seven chapters addressing eclipses, lunations, revolutions of the year, and the rising and setting of fixed stars (the last three used for monthly, annual, and daily forecasts). The fourth treatise deals with nativities, and in seven chapters offers instructions on the figure of conception and nativity, rectification of the hour of birth, life span, complexion and inclinations, health, and physiognomy. The fifth and last treatise deals in six chapters with the various techniques for prediction in nativities, such as directions, profections and revolutions.

Astrologia judiciaria presents two noticeable differences from *Astrologia pratica*. The first is the expansion of the section on calculation. In *Astrologia pratica* this part was included in the fourth section of the first treatise and only presented the calculation with the use of tables, but in *Astrologia judiciaria* it is developed into a different treatise presenting various methods of calculation. The second difference is the creation of a separate treatise for the techniques of prediction in nativities. In *Astrologia pratica*, Fallon places these methods within the treatise

on nativities when dealing with the rectification of the native's figure by accidents (that is events), while in *Astrologia judiciaria*, he chooses to separate the topics into an entirely different treatise, developing them a little more. There are other less obvious differences, namely the form and the level of detail in the exposition of the doctrine, its sequence, and the type of tables used. These differences, which only become evident when carefully reading the texts, will be addressed in more detail below. The existence of two versions of this text allows a rare opportunity to observe the development of the author's teaching methodology. The first text, *Astrologia pratica*, is also an important testimony to the teaching of astrology in a Jesuit college other than Santo Antão, in this case, the college of Coimbra.

Table 10.7 – Contents of *Astrologia judiciaria* by Fallon

Chapter title	Chapter translation
Questão Prohaemial	Proemial question
Que cousa seja Astrologia iudiciaria, E se he licita, necessaria, e proueitosa para a republica.	What thing is Judicial Astrology and if it is necessary and useful for the republic
Titulo. 1º. Que cousa seja Astrologia e como se destingue das outras sciencias	1 st title. What thing is Astrology and how it is distinct from other sciences
Titulo. 2º. Se a Astrologia he sciencia ou não	2 nd title. If Astrology is a science or not
Titulo. 3º. Se a Astrologia he licita ou não	3 rd title. If Astrology is licit or not
Titulo. 4º. Da necessidade, Nobreza e proveito da Astrologia	4 th title. Of the need, nobility and usefulness of Astrology
Tratado 1º. Da Figura Celeste	First treatise. On the Celestial Figure
Cap. 1º. Que coisa seja figura celeste	Ch. 1. What kind of thing is the celestial figure
Cap. 2º. Como se alevanta a figura celeste	Ch. 2. How to erect the celestial figure
Cap. 3º. Como se asentão na figura as Strellas fixas	Ch. 3. How the fixed stars are placed in the figure
Cap. 4º. Como se asentão os planetas na figura celeste	Ch. 4. How the planets are placed in the celestial figure
Cap. 5º. Como se poem na figura celeste o caput e cauda draconis e juntamente a parte da fortuna	Ch. 5. How the Caput and Cauda Draconis and the Lot of Fortune are placed in the figure
Tratado 2º. Dos principios geraes donde se forma o juizo astrologico	Second treatise. On the general principles from which the astrological judgement is taken
Cap. 1º. Declaranse a natureza e influencia das stellas fixas, principalmente dos signos do Zodiaco	Ch. 1. in which is declared the nature and influence of the fixed stars, mainly those of the zodiac signs.
Cap. 2º. Declarase a natureza, & influencia dos Planetas	Ch. 2. in which is declared the nature and influence of the planets,
Declarãose as dignidades essenciaes dos Planetas	in which are declared the essential dignities of the planets,
	in which are declared the accidental dignities of the planets,
Declarãose as dignidades accidentaes dos Planetas	in which are declared the planetary days and hours
Declaraosse os dias, & horas Planetarias	
Cap. 3º. Declaranse a natureza e influencia das casas celestes	Ch. 3. In which are declared the nature and influence of the celestial houses
Cap. 4º. Que cousa hé senhor da figura, e como se auerigua	Ch. 4. What manner of thing the lord of the figure is and how it is sought.
Declarãose as outras dignidades da figura celeste	The other dignities of the celestial figure
Tratado 3º. Do Juizo astrologico dos tempos	Third treatise. Of the astrological judgement of the weather
Cap. 1º. Que terras e, e como se sugeitão as influencias dos corpos celestes	Ch. 1. What lands, and how they are subjected to the influences of the celestial bodies

Cap. 2º. Declarãose as causas uniuersais das mudanças do tempo
 Cap. 3º. Que pronosticão as conjunções eclípticas
 Cap. 4º. Como se forma o juizo astrologico do anno

Cap. 5º. O juizo astrologico dos meses conjuncionais e oposições das luas
 Cap. 6º. Juizo astrologico de cada dia
 Cap. 7º Juizo dos tempos por alguns sinaes apparentes

Tratado 4º. Dos nascimentos

Cap. 1º. A que tempo se alevanta a figura, se ao da conceição se ao do nascimmento
 Cap. 2º. Como se averigua a verdadeira hora de hum nascimento?
 Cap. 3º. Juizo astrologico da vida
 Cap. 4º. Juizo astrologico da compleição e inclinações naturaes do nascido
 Cap. 5º. Juizo astrologico das doenças
 Cap. 6º. Como se julgarão os mais accidentes da figura
 Cap. 7º. Juizo que se forma da phizionomia do nascido

Tratado 5º & ultimo. Das direcções, profeccoes annuais & revoluções

Cap. 1º. Que coisa seia direcção, significador & promissor?
 Cap. 2º. Como se fazem as direcções?
 Cap. 3º. Como se reduzem a tempo os graus da direcção?
 Cap. 4º. Que cousa seia profeccão annua e como se pratica?
 Cap. 5º. Como se julga das profeccões anuais?
 Cap. Último. Compendio de toda a Astrologia.

Ch. 2. In which are declared the universal causes of weather change

Ch. 3. What do ecliptic conjunctions prognosticate

Ch. 4. How to cast the astrological judgement of the year

Ch. 5. Astrological judgement of the conjuncional months and the oppositions of the moon

Ch. 6. The astrological judgement of each day

Ch. 7. Judgement of the weather by some apparent signs

Fourth treatise. Of Nativities

Ch. 1. For which time the figure is erected, whether the time of conception or that of birth

Ch. 2. How to seek the true hour of a nativity

Ch. 3. Astrological judgement of life

Ch. 4. Astrological judgement of the complexion and natural inclination of the native

Ch. 5. Astrological judgement of diseases

Ch. 6. How to judge the other accidents of the figure

Ch. 7. Judgement that can be made of the native's physiognomy

Fifth and last treatise. Of directions, annual profections and revolutions.

Ch. 1. What manner of thing is a direction, significator and promissor.

Ch. 2. How directions are made.

Ch. 3. How the degrees of the directions are reduced to time.

Ch. 4. What manner of thing is annual profection and how it is practised.

Ch. 5. How to judge annual profections.

Last chapter. Compendium of all Astrology

In both these texts, in his exposition of the astrological doctrine, Fallon not only shows himself quite knowledgeable in the matter, but also experienced in its practice. This is revealed in the text by several of his comments about his choice of doctrine and techniques of interpretation. He is also very critical of certain astrological practices he considers technically absurd or simply superstitious, which makes him sometimes divert from tradition (as will be discusses further on). Both astrological programmes by Fallon present to the student a very comprehensive teaching of astrological doctrines and their licit practices. His presentation is highly detailed both in the astrological doctrine and in the astronomical principles behind it. Hence, he quite often presents extensive explanations of the mathematical calculations of planetary movement, eclipses and directions. From this point of view Fallon's astrology texts display more mathematical content than those by Delgado or Dias.



Figure 10.5 – Cover of *Astrologia judiciaria* by Simon Fallon, from BNP Cod. 4246.

Additions to Fallon's text

A variation of Fallon's judiciary astrology can be found in the manuscript Biblioteca Nacional de Portugal, Cod. 4331. Copied sometime in the 1660s or shortly after, this manuscript contains only the introduction and three of the five treatises of the original text, namely the first two on calculation and general principles and the treatise on nativities.⁴⁷³ On first sight, this appears to be an incomplete copy, but the quality of the hand and a closer study of the text reveals otherwise. This a tailored version of Fallon's text for a reader whose main interest was the study of nativities. Furthermore, the text contains several paragraphs and chapters not found in the original text. For the most part these additions follow the spirit of Fallon's work, but are more lenient concerning parts of the astrological doctrine that for most authors in this period (Fallon included) were superstitious; some of them even cross into areas of astrology that were forbidden. The following table lists all the add-on sections and chapters, shown in grey.

Table 10.8 – Additions to Fallon's *Astrologia judiciaria* (shaded in grey)

Chapter title	Chapter translation
Tratado 2º. Dos principios geraes donde se forma o juizo astrologico	Second treatise. Of the general principles from which the astrological judgement is taken
Cap. 2º. Declarase a natureza, & influencia dos Planetas	Ch. 2. In which is declared the nature and influence of the Planets
Declarãose as dignidades essenciaes dos Planetas	In which is declared the essential dignities of the planets
Declarãose as dignidades accidentaes dos Planetas	In which is declared the accidental dignities of the planets
Declaraosse os dias, & horas Planetarias	In which is declared the planetary days and hours
Das Dominações dos Planetas pertencentes às horas Planetarias	Of the lordships of the planets belonging to the planetary hours
Como sabemos em qualquer parte do mundo em que nós achamos em que Clima estamos	How we know, in any part of the world, in which clime we are in
Como saberemos a que horas nasce, e se poem o Sol em todos Dias pello discurso do anno.	How we know at what time the sun rises and sets in all the days throughout the year
Como se medem as Horas Planetárias	How to measure the planetary hours.
Do que podemos obrar, ou deixar de obrar em qualquer hora planetaria, suposta a Vontade diuina que hé a que obra.	What can be done, or not done in any planetary hour, assuming the Divine Will which is the one at work
Da forma da natureza de hum nascido, conforme o Planeta que reinar em o dia da semana em que nascer.	Of the form and nature of one born, according to the planet that rules the day of the week in which the birth occurs.
Da Phisonomia que prometem os Planetas aos que nascem debaixo de seu Dominio.	Of the physiognomy promised by the planets to those born under their domain.
Seguesse hum breve noticia acerca dos concebimentos das criaturas, em que se explica a cauza porque os nascidos de 8. mezes não Vivem	There follows a brief note on the conception of creatures in which is explained why those born on the 8 th month do not live.
Cauza porque os nascidos de 8. mezes não Vivem	The cause of why those born of 8 th months do not live
Da Monstruosidade da natureza, & da proporção perfeita do homem.	Of the monstrosity of nature and of the perfect proportion of Man.
Da perfeita proporção do Homem	
Das 4 compleçoens de que somos formados.	Of the 4 complexions of which we are formed.

⁴⁷³ The watermarks point to a date sometime after 1664.

Do que podemos obrar conforme o signo em que estiver a [Lua]	What can be accomplished according to the sign in which the moon is.
Cap. 4º. Que cousa hé senhor da figura, e como se auerigua	Ch. 4. What manner of thing is the lord of the figure and how it is sought.
Como se colhem as dignidades de cada hum planeta. Como se ha de tirar à Sorte, que se asignará na figura com este sinal ⊕.	How to collect the dignities of each planet. How to take the Fortune, which will be signalled in the figure with this sign ⊕.
Tratado 4º. Dos nascimentos	Fourth treatise. On Nativities
Cap. 8º. De como se hade uzar da figura aserca dos nascimentos. Juízo astrologico açerca da vida do nascido Do que pronosticão as quartas do Anno ao nascido, conforme o tempo em que nascer Da boa ou má proporção que promete os signos celestes e os planetas ao nascido A Cor do Rosto se julga. Regras geraes para responder a perguntas liçtas sem prejuizo de 3º	Ch. 8. How to use the figure regarding nativities. Astrological judgement of the native's life What the quarters of the year prognosticate, according to the moment of birth Of the good or bad proportion that the celestial signs and the planets promise to the native Judgement of the colour of the face. General rules to answer to licit questions without harm to a third party.
Cap. 9º. Da Physionomia que prometem os signos celestes ao nascido conforme as cazas da figura em que se acharem [Carneiro] no Ascendente [Touro] no Ascendente [Gêmeos] no Ascendente [Cancer] no Ascendente [Leão] no Ascendente [Virgem] no Ascendente [Libra] no Ascendente [Escorpião] no Ascendente [Sagitário] no Ascendente [Capricórnio] no Ascendente [Aquário] no Ascendente [Peixes] no Ascendente De cada hum dos signos na 10ª Caza. De cada hum dos signos na 7ª Caza. De cada hum dos signos na 4ª Caza. Da Physionomia que promete o planeta <i>senhor</i> do Ascendente, ou oroscopo Das inclinações do nascido, & genero de amizades, segundo as cazas em que se achão os Planetas Do Estado e honras do Nascido. Advertencias sobre os juizos das dignidades e honras do nascido. Dos <i>filhos</i> que terá o nascido conforme as cazas em que se acharem os planetas. Das doenças e perigos do nascido. Da Exaltação dos pais do nascido e de sua cayda conforme as cazas em que stiverem os Planetas Anotações Universaes. Da Exaltação e caida dos pajs do nascido, pellos aspeitos dos planetas em as Cazas. Das Emfermidades e ameação os Planetas aos pais do nascido. Annotaçoens acerca do Planeta que se acha em Ascendente	Ch. 9. Of the physiognomy that the celestial signs promise the native according to the houses of the figure where they are found. Aries in the Ascendant Taurus in the Ascendant Gemini in the Ascendant Cancer in the Ascendant Leo in the Ascendant Virgo in the Ascendant Libra in the Ascendant Scorpio in the Ascendant Sagittarius in the Ascendant Capricorn in the Ascendant Aquarius in the Ascendant Pisces in the Ascendant Each sign in the 10 th house Each sign in the 7 th house Each sign in the 4 th house Of the physiognomy promised by the planet ruler of the ascendant or horoscope Of the inclinations of the native, and type of friendships according to the houses in which the planets are found Of the status and honours of the native. Some warnings regarding the judgements on the dignities and honours of the native Of the children the native will have according to the houses in which the planets are found Of the diseases and dangers of the native Of the exaltation of the native's parents and their fall according to the houses in which the planets are found Universal notes. Of the exaltation and fall of the parents of the native by the aspects of the planets in the houses. Of the infirmities that the planets threaten to the native's parents. Annotations about the planet found in the Ascendant

The more neutral add-ons are those either concerning astronomical calculations, such as the determination of the latitude and the rising and setting of the Sun, or the numerous addenda on physiognomy throughout the text. Others, such as the section on how to assign the number of dignities and debilities to a planet, are useful to any student of astrology. There are some instructions which directly contradict Fallon's text, such as the use of planetary hours for selecting the best moment for a given task. This is an element of the doctrine that Fallon considers useless and devoid of foundation (although, as seen above, other authors, such as his contemporary Sempill, held a different view). Thus, at the end of the chapter Fallon states:

I said at the beginning of this section that some astrologers give much attention to these planetary days and hours, and I do not know the reason why, as I see no foundation from where this influence can be inferred; and thus I consider that all that is said on this matter is stated without any restraint and with no foundation whatsoever; and for this same reason I do not include here how to change from unequal hours and planetary hours, and the equal hours that we use, as this is not required for true astrology.⁴⁷⁴

However, in the modified text in Cod. 4331, this last paragraph is omitted and there are six additional sections concerning the calculation and practical use of planetary hours in nativities and elections.

Most of the additions which cross the line into forbidden areas appear in two extra chapters, eight and nine, supplementing the fourth treatise, on nativities, which originally ended in chapter seven. For example, the last section in chapter eight, entitled 'General rules to answer licit questions without harm to a third party' ('Regras geraes para responder a perguntas lícitas sem prejuizo de 3º'), deals with interrogations. As seen before, this division of astrology was traditionally included in any book of astrology, but by the seventeenth century, after the Church's strictures, became out of bounds for any proper Catholic practitioner. Almost all interrogations were considered blunt violations of the rules against the prediction of chance events, those depending on free will, and worst of all, those regarding secrets, thefts and hidden things. Thus, for the most part Jesuit authors do not even mention interrogations, considering them an abominable practice (as seen in Part Two). Furthermore, as with the planetary hours, many authors of this period considered interrogations a practice without a foundation in reason

⁴⁷⁴ Disse no princípio deste título que alguns astrólogos faziam grande caso destes dias e horas planetárias e não sei na verdade porque razão, porque não vejo fundamento donde se infira esta influência, e assim entendo que tudo o que se disser nesta matéria é livremente dito e sem fundamento algum, e por esta mesma razão não ajunto aqui como se reduzem as horas desiguais, e planetárias, e horas iguais de que usamos visto não ser necessária para a verdadeira astrologia (Fallon, *Astrologia judiciaria*, tr.2, ch.2).

or natural principles.⁴⁷⁵ The writer of this additional section clearly had some ethical concerns, since he states in the very title that the rules presented are licit and not harmful to another person. What is meant here is that questions regarding secrets and hidden things, such as those on someone's virginity or private actions, will not be considered. As seen before, theologically these would imply the activity of demons. However, the type of questions presented infringe on the matter of free choice and chance events: the attainment of a post or office, the winning of a dispute, the payment for a job done, the finding of a lost possession, the answer to a marriage proposal, among others. Chapter nine adds a few more examples of borderline illicit practices, at least for a strict Christian practitioner. In this case it concerns nativities, teaching rules for judgements such as the children of the native and their condition, and the honours and health of the native's parents, which were dependent on free action of others than the native.

The source of almost all of these additional texts can be found in the manuscript Biblioteca Nacional de Portugal, Cod. 2129. This manuscript is a collection of astrological doctrine from several sources, gathered by someone named Manuel Rodrigues under the title *Estrelario* ('Star map'). The date of these texts is uncertain, but the latest astrological figure is from 1616. The mixture of Fallon's work with the assorted doctrine from Cod. 2129 shows that, despite the respect given to the Church's authority, the students still engaged in astrological practices which were either forbidden or bordering on the limits of acceptance. Therefore, despite the cleanliness of astrological texts such as Fallon's and the other Jesuit authors, there was a parallel circulation of manuscript texts in Portuguese that supplied information on the less approved parts of astrology.

⁴⁷⁵ Not all shared this view and horary astrology was still practiced during the seventeenth century, usually in non-Catholic countries. One of the best-known examples is the English astrologer William Lilly who dedicates the second part of his book *Christian Astrology* (London, 1647) to the teaching of interrogations, presenting several examples of his own practice.

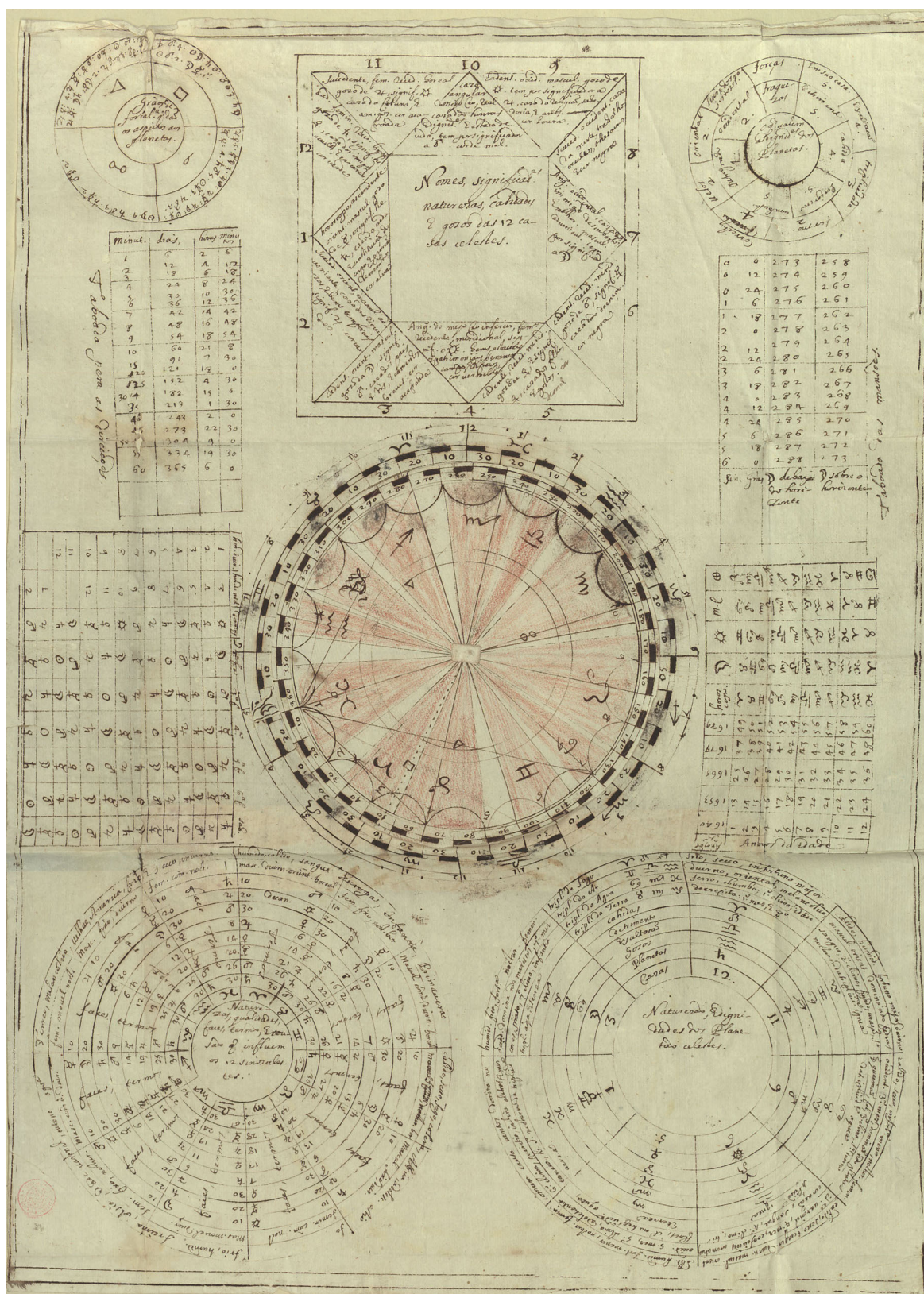


Figure 10.6 – Folded astrological tables of *Astrologia iudiciaria* by Simon Fallon, BNP A.T./L.9.

From top to bottom: strengths of the planetary aspects (left); attributes of the houses (centre); strengths of the planets (right); table for directions (left); table for the mansions (right); volvelle with aspects of the Moon (centre); planetary hours (left); table of profections (right); nature and dignities of the zodiacal signs (left); nature and dignities of the planets (right).

Luís Gonzaga's astrological theatre

Born in Lisbon in 1666, Gonzaga joined the Society in 1683. He studied philosophy in Évora from 1686 to 1690, and mathematics between 1692 and 1694. Gonzaga completed his theology studies in Coimbra, where he taught mathematics privately to Jesuit students from 1695 to 1699. Between 1700 and 1705 he was appointed teacher of the *Aula da Esfera*. From 1706 to 1713 he became the preceptor of the princes (the future João V and his brothers), returning afterwards to Santo Antão, where he served as rector from 1725 to 1731. He died in Lisbon in March 1747.⁴⁷⁶ Gonzaga's expertise in mathematics was acclaimed by his contemporaries and he left manuscript texts on astronomy, military architecture, engineering, chiromancy, and astrology.⁴⁷⁷

Luís Gonzaga is the last known teacher of the *Aula da Esfera* to produce his own text on astrology. There are two known astrological manuscripts by Gonzaga, the first and oldest is Biblioteca da Ajuda, Ms. 46-VIII-22, (hereafter Ms. 46-VIII-22) and contains several texts on astrology. The largest of these texts is known as *Tratado da Astrologia* ('Treatise on astrology') also entitled *Theatro astrologico* ('Astrological theatre'). The others are a text on the construction of the astrological figure (fols. 75r-76v), a treatise on the judgement of nativities (fols. 77r-108r), and a compendium on the judgements of comets (fols. 109r-129r); there is also a judgement of a phenomenon observed in Lisbon (fols. 129r-134v), which will be dealt in Part IV, since it concerns practice and not astrological doctrine and teaching. The second manuscript, Arquivo Nacional da Torre do Tombo, Manuscrito da Livraria 2132 (hereafter ML 2132), contains only a copy of the first text of Ms. 46-VIII-22, the *Tratado da Astrologia* or *Theatro astrologico* (fols. 1r-94v). Besides Gonzaga's treatise, this manuscript also contains a treatise on chiromancy (fols. 95r-295r) by another Jesuit, Inácio Vieira (1678-1739), who taught the *Aula da Esfera* from 1708 to 1719.⁴⁷⁸ Until now, because no author was mentioned, the

⁴⁷⁶ On Gonzaga see Carlos Sommervogel, ed., *Bibliothèque de La Compagnie de Jésus*, vol. 3 (Paris: A. Picard, 1892), col. 1581; *Bibliothèque de La Compagnie de Jésus*, vol. 9 (Paris: A. Picard, 1899), 420–421; *História da Companhia de Jesus na Assistência de Portugal*, vol. III–1 (Porto: Apostolado da Imprensa, 1944), 207–8; Baldini, 'The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal', 404–5.

⁴⁷⁷ For a list of his works see Leitão and Martins, *Sphaera mundi*, 197–204; his text on military architecture is discussed in Denis De Lucca, *Jesuits and Fortifications: The Contribution of the Jesuits to Military Architecture in the Baroque Age* (Brill, 2012).

⁴⁷⁸ The teaching of chiromancy in Santo Antão appears only in the first decade of the eighteenth century and has yet to be the focus of a detailed study. At least two teachers are known to have engaged it: Luís Gonzaga and Inácio Vieira. Gonzaga's lessons on chiromancy survive in a single known copy in BPMP, Ms. 769 (fols. 45r-97r) containing a full course on the topic including a large collection of hand lines illustrations; the date of these lessons is unknown. Vieira's lessons, perhaps more popular, survive in at least four manuscripts: ANTT, Manuscrito da Livraria 2132, fols. 95r-295r; BNP Cod. 7782, pp. 1-235; BNP Cod. 4324; CDFO LCA 1202. According to Barbosa de Araújo, a student of the *Aula da Esfera*, Vieira's chiromancy classes were intended to provide a pause from the more theoretical subjects, or to attract more students to the

astrological text in ML 2132 had been attributed to Vieira, however, a comparison of the two texts revealed it to be a copy of Gonzaga's text and not an original work. Thus, if Vieira ever taught astrology in Santo Antão he probably used Gonzaga's treatise.

The Astrological Theatre

Gonzaga's main astrological text is preserved in two known copies. The one in Ms. 46-VIII-22 is most likely the original text, since it presents amendments, notes, crossed-out sentences, chapters out of order or unnumbered that are already incorporated and corrected in the other copy in ML 2132. Otherwise, the texts are identical in terms of content, with some minor differences in a few words and titles. The version in ML 2132 is a later updated and cleaner copy, with no amendments. MS 46-VIII-22 also provides a timing for Gonzaga's teachings, since the dates of the classes are noted on some of the folios. The course began on 22 February 1702, as noted in the first folio, and it lasted until 16 February 1705 (fol. 61r) which is the last date recorded.

Gonzaga begins the treatise with an introduction where he makes a defence of astrology and names his treatise 'Astrological Theatre' (*Theatro astrologico*). Accordingly, he calls each of the chapters 'apparencia' (i.e. appearance), a term which alludes to the change of scene or set in a theatrical play, being at the same time a play of words with the astronomical technical term. The first set of chapters or 'appearances' deals with the principles of the art. First is presented a definition of astrology and its divisions, and an explanation of the astrological figure, followed by a discussion of the aspects of the planets, their influences, the essential and accidental dignities, the Lot of Fortune, and the twelve signs (five chapters). The next sequence

poorly attended mathematical classes (BNL, Cod. 322, fol. 235v). On them see Leitão, 'Entering Dangerous Ground: Jesuits Teaching Astrology and Chiromancy in Lisbon', 381–86. It must be added that some elements of chiromancy are briefly mentioned by Simon Fallon in the chapter on physiognomy (chapter 7) of the treatise on nativities, but without any practical application. Although these lessons may appear odd, they are not the only texts on chiromancy by Jesuits. The topic is also addressed, albeit in less extensively, by an earlier Jesuit author, Honorat Nicquet (1585-1667) in his *Physiognomia humana libris IV distincta* (Lyon: Petri Prost, Philippi Borde, & Laurentii Arnaud, 1648). Like astrology, although in a different category, chiromancy was condemned by the Church on the grounds of being divination, being one of the forbidden topics in Rule IX of the Index and the bull of Sixtus V. Therefore, Jesuit authors justified its study as a branch of physiognomy, promoting a natural version of this discipline they name 'physical chiromancy', in similar fashion to the idea of natural astrology. This was an argument already mentioned by authors such as Martín Del Río in his *Disquisitionum magicarum libri sex*, book IV, chapter III, question V (pp. 621-628), see Del Río, *Investigations into Magic*, 173–74 in the modern edition. Indeed, Jesuit authors usually make correlations between chiromancy and astrology, discussing them together. Such is the case of Nicquet's book, but also a later critical work on astrology and chiromancy by a certain Battista Tasgresti, a pseudonym use by Jesuit Giovanni Battista Grassetti (1609-1684), titled *La vera, e falsa astrologia. Con l'aggiunta della vera, e della falsa chiromanzia* (Roma: Giuseppe Corvo; Michel' Ercole, 1683). The latter text argues for the use of a natural astrology and chiromancy, but it is more focused in criticising them, than to teach their practice. The astrological section is little more than a treatise on the sphere with a critical overview of the practice and principles of judicial astrology. Very little practical applications are presented on both topics. These texts on chiromancy are part of a widespread resurgence of this discipline in early modern period that continued throughout the eighteenth century; see, for example, Michael R. Lynn, 'The Curious Science: Chiromancy in Early Modern France', *Magic, Ritual, and Witchcraft* 13, no. 3 (2018): 447–80.

deals mainly with nativities, presenting the rules of judgement for the twelve houses (five chapters). The text then transitions from nativities to medical matters, with the presentation of the rules and precepts for the judgement of diseases (ten chapters). The final section is solely dedicated to the judgement of weather (eleven chapters). Differently from the previous authors, Gonzaga does not organise his text into separate treatises, each covering a division of astrology. There is, however, a general stratification of the chapters which are grouped around a common topic: general principles, nativities, medicine, and weather forecasting. Yet, *Theatro astrologico* offers more than just a change in structure when compared with the former treatises. Some elements of astrological doctrine present significant differences. These are, first of all, consequences of the more than sixty years' separation between Gonzaga's text and the last known astrological text from the *Aula da Esfera* by Fallon, revealing a significant change in the astrological tradition. This will be addressed in detail in the next chapter.

Table 10.9 – Contents of the *Tratado da Astrologia* or *Theatro astrologico* by Gonzaga

Chapter title	Chapter translation
Tratado da Astrologia	Treatise of astrology
Theatro astrológico. Da diffinição, diuisão da Astrologia e fabrica das doze cazas celestes	Astrological theatre. On the definition, division of astrology, and the construction of the twelve celestial houses
Modo de levantar figura	How to erect the figure
Apparencia 1 ^a . Das conjuncoens [extra two paragraphs]	1st appearance. On conjunctions
Apparencia 2 ^a . Dos aspetos planetarios	2nd appearance. On planetary aspects
Dos influxos destes aspetos pellos aspectos.	Of the influences of the planets through the aspects.
Dos influxos destes aspetos por ordem ao tempo	Of the influences of the aspects about the weather
Apparencia 3 ^a . Dos titolos que se dão aos planetas, e dignidades de que logrão	App. 3. On the titles given to the planets and of the dignities which they have
Das dignidades essenciais	Of essential dignities
Apparencia 4 ^a . Da Fortuna, e dos lugares em que os Planetas logrão de algumas particularidades, e de suas amizades e inimizadas	App. 4. On Fortune, and the places in which the planets have some particularities, and of their friendships and enmities
Apparencia 5 ^a . Dos Signos	App. 5. On the signs
Da significação dos 12 Signos para os nascimentos	On the significations of the 12 signs for nativities
Dos 12 Signos por ordem ao tempo	On the 12 signs pertaining to the weather
Por ordem aos costumes	Pertaining to customs
[...]	[no title]
Dos signos em o ascendente	On the signs in the Ascendant
Dos 12 signos na 10 ^a caza	On the 12 signs in the 10 th house
Dos 12 signos na 7 ^a caza	On the 12 signs in the 7 th house
Dos 12 signos na 4 ^a caza	On the 12 signs in the 4 th house
Apparencia 7 ^a [6 ^o]. Da significação da Cabeça e Cauda do Dragão pellas 12 cazas	App. [6]. On the signification of the head and tail of the dragon through the 12 houses
Da Cauda do Dragão	On the Tail of the Dragon
Apparencia 8 ^a [7 ^a]. Dos planetas pellas 12 cazas celestes	App. [7]. On the planets through the 12 houses
Saturno	Saturn
Jupiter	Jupiter
Marte	Mars
Sol	The Sun

Venus

Mercurio

Lua

Apparencia 8^a [sic.]. Dos influxos dos Planetas em suas proprias cazas, e nas alheias

Apparencia 9^a. Das principais coizas, que no homem estão subgitas aos influxos dos planetas por cada um em particular

Apparencia 10^a. Das partes do corpo, e suas compleições pela correspondencia dos planetas

Apparencia 11^a. De algumas coizas mais especiais em que os planetas influem

Apparencia 12^a. De alguns juizos gerais tidos por canones astrológicos

Apparencia 13^a. Dos influxos de algumas estrellas nas genituras

Apparencia 14^a. Dos horoscopos pera as doenças

Apparencia 15^a. Dos dias críticos

Apparencia 16^a. Dos annos, e meses climatericos por ordem aos planetas antes, e depois do nascimento

Apparencia 17^a. Regras pera melhor se formarem os juizos das doenças

Apparencia 18^a. De alguns juizos mais particulares das doenças

Apparencia 19^a. Dos significados dos dias pera os dias críticos

Apparencia 20^a. Dos juizos por hordem aos tempos

Apparencia 21^a. De alguns juizos gerais dos anos

Apparencia 22^a. De alguns juizos gerais pellos mezes e dias da semana

Apparencia 23^a. Observações coriozas por alguns dias dos mezes

Apparencia 24^a. Do modo qual de formar os juizos pera as mudanças dos tempos

Apparencia 25^a. Dos influxos dos planetas, e de algumas estrellas por ordem ao tempo

Apparencia 26^a. Das portas, e canicula

Apparencia 27^a. Das mudanças do ar pellos influxos dos planetas

Apparencia 28^a. Das mudanças dos tempos pellos senhores do anno

Apparencia 29^a. Das mudanças do ar pella conjunção do Sol com algumas estrellas

Apparencia 30^a. Das mudanças do ar pella conjunção mais celebre de alguns planetas com algumas estrellas

Venus

Mercury

The Moon

App. 8. On the influences of the planets in their own domiciles and in the others

App. 9. On the main things that in man are subjected to the influences of the planets, by each one in particular

App. 10. On the parts of the body and their complexions through the correspondence of the planets

App. 11. On some special things in which the planets have influence

App. 12. On some general judgements considered astrological canons

App. 13. On the influence of some stars on genitures

App. 14. On the horoscopes for diseases

App. 15. On the critical days

App. 16. On the climacteric years and months regarding the planets before and after birth

App. 17. Rules to better form judgements regarding diseases

App. 18. On some particular judgements of diseases

App. 19. On the signification of the days for the critical days

App. 20. On the judgements regarding the weather(?)

App. 21. On some general judgements of the years

App. 22. On some general judgements by the months and days of the week

App. 23. Curious observations regarding some days of the month

App. 24. The manner by which to form the judgements for the changes in weather

App. 25. On the influences of the planets and some stars regarding the weather

App. 26. On doors and dog days

App. 27. On the changes in the air by the influence of the planets

App. 28. On the changes of weather by the lords of the year

App. 29. On the changes in the air by the conjunction of the Sun with some stars

App. 30. On the changes in the air by the more famous conjunction of some planets with some stars

On the Astrological Figure and The Judgement of Nativities

These two texts, which follow immediately the *Theatro astrologico*, seem to be part of the same work. At first glance they appear to be supplements to the main treatise, or extras that were not included in the final version. However, and despite being written by the same hand, they are on an inset of smaller folios than those of the main text (fols. 75r-108r), suggesting it to be a different work that was bound together with the *Theatro* due to their common subject matter. This is further deduced because some of the chapters of the second text repeat those of the

Theatro. The doctrine in Appearance six is repeated with very similar wording in chapters one to four of the second text. The first text (fols. 75r-76v), bears no title and offers a description on the construction of an astrological figure. The example used is stated as being ‘the birth of the most serene prince’, 3 August 1697, which corresponds to the birth of Prince Manuel of Bragança (1697-1766), who was Gonzaga’s pupil by 1706. This means that these are texts used to teach astrology to the princes, which would account for some of the repetition. At the end the reader is directed to chapters on the interpretation of the planets in the houses, which appear in the following text, though not with the exact same numbering: chapters 3 and 4 correspond to chapters 1 and 2 (see Chapter 12 for a study of this text). The second text, ‘Astronomical judgements for nativities and their figures’ (*Juizos astronomicos para os nascimentos e suas figuras*), is larger and more complex (fols. 77r-108r). It is a treatise in twenty-nine chapters on the judgement of nativity figures. It concerns mainly the interpretation of the various combinations of signs in the main houses or angles of the chart: Ascendant, tenth house or Mid-heaven, seventh house or Descendant, and fourth house or Angle of Earth (four chapters). Afterwards, it deals with the planets as lords of the ascending sign, and the significations of the lord of the Ascendant in each of the twelve houses.

The subsequent chapters follow this structure offering general interpretations for the ruling planet of each house when placed in another house, for the planets in the signs, for the Lot of Fortune in the houses and its conditions in the chart, and for the various combinations of the planets by aspect. The three final chapters are unnumbered; the first two are on the meaning of the twelve houses and their method of interpretation, while the last chapter is on violent stars and signs, a topic used in the prediction of death. It is possible they are not placed in their final intended order, which would explain the lack of numbering.

Table 10.10 – Chapters of the astronomical judgements for nativities and their figures

Chapter original title	Chapter translation
Juizos astronomicos para os nascimentos e suas figuras	Astronomical judgements for nativities and their figures
Cap. 1. Dos significados dos doze signos no Ascendente	Ch. 1. On the meanings of the twelve signs in the ascendant
Cap. 2. Significado dos doze signos pela 10 ^a casa	Ch. 2. Meanings of the twelve signs on the 10 th house
Cap. 3. Significação dos doze signos na 7 ^a casa	Ch. 3. Meanings of the twelve signs on the 7 th house
Cap. 4. Significação dos doze signos na 4 ^a casa	Ch. 4. Meanings of the twelve signs on the 4 th house
Cap. 5. Significação dos planetas nas pessoas e nas cousas	Ch. 5. Meaning of the planets in people and things
Cap. 6. Significação dos planetas sendo senhores do Ascendente	Ch. 6. Meaning of the planets when lords of the Ascendant
Cap. 7. Do significado do [senhor do] Ascendente por todas as casas	Ch. 7. On the meaning of [the lord of] the Ascendant in all houses
Cap. 8. Do Senhor da 2 ^a Casa por todas as Casas	Ch. 8. On the lord of the 2 nd house in all houses

Cap. 9. Do Senhor da 3 ^a Caza por todas as Cazas	Ch. 9. On the lord of the 3 rd house in all houses
Cap. 10. Do Senhor da 4 ^a Caza por todas as Cazas	Ch. 10. On the lord of the 4 th house in all houses
Cap. 11. Do Senhor da 5 ^a Caza por todas as Cazas	Ch. 11. On the lord of the 5 th house in all houses
Cap. 12. Do Senhor da 6 ^a Caza por todas as Cazas	Ch. 12. On the lord of the 6 th house in all houses
Cap. 13. Do Senhor da 7 ^a Caza por todas as Cazas	Ch. 13. On the lord of the 7 th house in all houses
Cap. 14. Do Senhor da 8 ^a Caza por todas as Cazas	Ch. 14. On the lord of the 8 th house in all houses
Cap. 15. Do Senhor da 9 ^a Caza por todas as Cazas	Ch. 15. On the lord of the 9 th house in all houses
Cap. 16. Do Senhor da 10 ^a Caza por todas as Cazas	Ch. 16. On the lord of the 10 th house in all houses
Cap. 17. Do Senhor da 11 ^a Caza por todas as Cazas	Ch. 17. On the lord of the 11 th house in all houses
Cap. 18. Do Senhor da 12 ^a Caza por todas as Cazas	Ch. 18. On the lord of the 12 th house in all houses
Cap. 19. Dos planetas em todos os signos em nascimentos diurnos e nocturnos	Ch. 19. On the planets in all signs in diurnal and nocturnal births
Cap. 20. Dos effeitos da ⊕ nas casas do ceo	Ch. 20. On the effects of the Lot of Fortune in the celestial houses
Cap. 21. <i>De reliquis ⊕ accidentibus</i>	Ch. 21. <i>De reliquis fortuna accidentibus</i>
Cap. 22. Das conjunções e aspectos de todos os planetas	Ch. 22. On the conjunctions and aspects of all planets
Cap. 23. Dos aspecto [trigono] dos planetas todos	Ch. 23. On the [trine] aspect of all planets
Cap. 24. Dos Aspectos sextiles dos planetas	Ch. 24. On the sextile aspects of all planets
Cap. 25. Da [oposição] dos planetas huns com outros	Ch. 24. On the [opposition] of the planets with one and other
Cap. 26. Do que significam os planetas dentro das 12 cazas	Ch. 26. On the signification of the planets in the 12 houses
Cap. [?]. Das Doze Casas do Ceo	Ch. [?]. On the twelve houses of heaven
Cap. [?]. <i>Domorum caelestium declaratio et Significatio</i>	Ch. [?]. <i>Domorum caelestium declaratio et significatio</i>
Notas	Notes
Cap. [?]. Das Estrellas e Signos Violentos	Ch. [?]. On violent stars and signs

The compendium on cometary judgements

Dated from 21 May 1705 this text offers a brief treatise on the astrological interpretation of comets (109r-128r) as Gonzaga intended:

I however (...) because at present I do not take as a task to address the comets because of what they are by themselves, but by what they infuse in the sublunary things, leaving aside the large amount of information on their properties and nature, and the determination of their effects. I only intend to give a most brief compendium of their influences, as much as the time constraints allow, without omitting, as I hope, what is needed and necessary for a curious knowledge of what it is and [what] occurs in this phenomenon, that is so admirable and wondrous when observed because of its novelty more than for any other reasons as Seneca states when speaking of said comets, book four, *Naturalium quaestionum*, chapter one: *Adeo naturale est, magis nova quam magna mirari idem in cometis fit*.⁴⁷⁹

The compendium (*Compendio dos juizos cometarios*) is divided into nine sections addressing the nature, type, influences, colour, shape, duration, movement, and position of the comet in the heavens. Gonzaga's compendium is the second known text by a Jesuit from Santo Antônio

⁴⁷⁹ Eu porem (...) porque não tomo por empresa ao presente tratar dos cometas, pello que em si têm, mas pello que nos sublunares infundem, deixando a larga noticia de suas propriedades e natureza, e a determinação de suas conclusões; so pertendo dar hum brevíssimo compendio de seos influxos, quanto as angustias de tempo derem lugar, sem faltar como espero ao preciso, e necessário para hum curioso conhecimento do que seja, e passa neste phenomen, que tanto admira, e assombra, quando se observa, mais por novo, do que por outros motivos como diz Seneca falando dos mesmos cometas, L.4 nal. qq. C.1 *Adeo naturale est, magis nova quam magna mirari idem in cometis fit* (BA, Ms. 46-VIII-22, fol. 109r).

exclusively dedicated to the astrological interpretation of comets. The other is the astrological treatise on the comets of the Egerton manuscript, possibly by Sebastião Dias. The two texts are separated by almost one hundred years (circa 1610 and 1705). Though there is not textual relationship between them, they emphasise the importance and continuous interest for the interpretation of these phenomena.

Table 10.11 – Sections of the compendium of cometary judgements

Chapter original title	Chapter translation
Compendio dos juízos cometarios	Compendium of cometary judgements
Que cousa seja cometa	What kind of thing is a comet
Das species dos Cometas	On the types of comets
Dos Influxos dos Cometas	On the influences of comets
Da cauda dos cometas	On the tail of comets
Da cor dos cometas	On the colours of comets
Do resplendor e figura e duração	On the brightness and figure and duration
Do Sito, Lugar, Movimento e distância	On the place, position, movement and distance
Do Sito na Esfera Celeste	On the place [of the comet] in the celestial sphere
Modos de representar Cometas	Manners of representing comets

Other astrological texts

There are other relevant manuscripts containing astrological lessons who are likely to be of Jesuit origin, but whose connection to the *Aula da Esfera* or the Jesuits cannot be established with absolute certainty at this time. There are, nonetheless, enough circumstantial evidence connecting them to Santo Antão or the Jesuit context to consider them in this study, even if putatively. The first two texts are the most relevant, as their link to Santo Antão is more evident, while the third text presents a very close similarity to the larger treatises discussed above.

The Astronomical Introduction and the Principles of Astrology

The family archive of the Counts of Ponte contains several sixteenth-century scientific texts collected by the head of the family, the first Count of Ponte, Francisco de Melo e Torres, whose life and work will be addressed below. He was a student at Santo Antão and collected several manuscripts containing materials from the *Aula da Esfera*. One particular codex of his family archive stands out: Arquivo Nacional da Torre do Tombo, Arquivo dos Condes da Ponte, Caixa 38, doc. 2 (hereafter CPN 38.2). This codex contains a collection of texts and notes on astrology in Portuguese, and some astrological figures.⁴⁸⁰ Among these texts are two small astrological

⁴⁸⁰ Lisboa, Arquivo Nacional da Torre do Tombo, Arquivo dos Condes da Ponte, Caixa 38, doc. 2. This codex is still to be catalogued, so all folios mentioned relate to each individual document's own original foliation (when extant). My thanks to Pedro Pinto for drawing my attention to this manuscript.

treatises which present convincing connections with the Jesuits and the *Aula da Esfera*: an introduction to astrology, *Introdução astronômica* (two copies, by different hands) and another text on the principles of astrology, *Princípios de Astrologia*. The other astrological texts in CPN 38.2, although interesting do not display any evidence for a Jesuit origin. These are: two smaller texts, one on the meanings of the fixed stars when they rise [in a nativity] (*Significação das estrelas fixas quando estiverem no Oriente*), another on the meaning of the planets (*Significação dos sete planetas*); and a larger treatise on elections (*Tratado de eleições segundo os textos sábios*).⁴⁸¹ These are bound together with texts and loose folios on arithmetic, cosmography, and on the astrolabe.

The first text, *Introdução astronômica* (astronomical introduction) appears in two distinct copies in the miscellany: the first, with a poorer hand, contains the complete treatise together with what appears to be an additional text on the four angles of the astrological figure and their interpretation; the second copy, more carefully penned, contains only parts one to five. The first copy displays in the top of the initial folio the emblem of the Society of Jesus, which strongly suggests a Jesuit origin, most likely Santo Antônio. As the title suggests, this is not an advanced text on astrology, but it concisely covers the basic foundation of the discipline, as is explained in the introductory paragraph:

Ptolemy and all the school of astronomers make their foundation in the circle of the zodiac and divide this treatise in six parts. The first deals with the celestial signs, the second, of the planets and their significations, the third, the celestial houses, the fourth, the fortunes of the planets, the fifth of the explanation of some names that are used among the astronomers, the sixth, on the calculation of the celestial figure and use of tables.⁴⁸²

Although there is no date offered in the texts, a study of the paper watermark in the first copy, presenting the Society's emblem, suggests a date from the last decade of the sixteenth century. This would place this text in the early years of the *Aula da Esfera*, when it is known that at least Francisco Costa taught astrology.

⁴⁸¹ While the smaller texts could be a part or an addendum of the larger texts, the treatise on elections 'according to the texts of the wise' does not present any note or introductory remark that can link it to Jesuit authorship. It shows no connection to any previous treatise, nor to a preceding section on the introduction to astrology. It has no large introduction in the same fashion of the lessons, but it does define the election process an act of free will by stating in the very opening phase that: 'An election is an advice of the appetite [i.e. desire], first counselled. To elect is an appetite of the understanding [i.e. intellect] which results of the act of free will' (Eleição he hum conselho do appetite, primeiro aconselhado. Elligere he appetitu do entendimento que resulta do acto do livre alvedrio, fol. 1). Accordingly, most elections offered by the text are within the limits of acceptability, although they probably would not be permitted in a stricter context.

⁴⁸² Tolomeu e toda a mais escola dos astrónimos fasem seu fundamento no sircolo do Zodiaco e todo este tratado o devidem, em seis partes, a primeira trata dos signos selestes, a segunda dos planetas, e de suas sinificasois, a treseira das casas selestes, a quarta dos infortúnios dos planetas, a quinta da esposição de alguns nomes que os astrónimos uzão, a seista do modo de aleuantar o tema selestes, e uso das taboas (ANTT CPN 38.2, *Introdução astronômica*, fol. 1r).



Figure 10.7 – *Introdução astronômica* (copy 1) presenting the 'IHS' emblem – ANTT CPN 38.2

Table 10.12 – Table of contents of *Introdução astronómica*

Chapter original title	Chapter translation
Introdução astronómica. Tirada das signifacação da estromia segundo seus cacazes	Astronomical introduction. Taken from the meanings of astronomy according to its followers
Parte primeira [do Zodíaco]	First part [on the Zodiac]
da natureza dos 12 signos	On the nature of the twelve signs
segunda parte dos planetas	Second part, on the planets
signifacões dos planetas nos signos	Significations of the planets in the signs
seguese as esaltasois dos planetas em signos	It follows the exaltations of the planets in the signs
dos terminos e fiz dos planetas	On the terms and faces of the planets
dos decanos ou fácies	The decans of faces
dos aspeitos	On the aspects
4 parte [sic] das casas selestes	Third part, on the celestial houses
signifacão das cazas	Meanings of the houses
segese a 4 parte dos enfurtunios dos planetas	It follows the fourth part on the misfortune of the planets
quinta parte de alguns nomes que correm entre os astronimos aserca dos planetas	Fifth part, on some names that are used among the astronomers regarding the planets
segese a 6ta e ultima parte do modo de levantar o tema selete	It follows the sixth and last part on the manner of erecting the celestial theme
Capítulo dos significadores	Chapter on the signifiers
tratado das 4 cardines da esfera simplesmente sem nenhum aspeito de planeta	Treatise of the four cardines of the sphere simply and without no aspect from a planet
Tratado dos 4 angulos do tema selete segindo a escola dos astroligos e seus cacazes	Treatise on the four angles of the celestial teme according to the school of astrologers and their followers
signifacsois dos 4 algulos do tema selete segundo os astrolegos	Meanings of the four angles of the celestial theme according to the astrologers

The second text, *Principios de Astrologia* ('principles of astrology'), although similar in structure to the first, is more sophisticated. It covers the same basic foundations of astrology, but it is better organized and much closer to the introductory texts of the *Aula da Esfera*. It is divided into seven parts: the first on the signs of the zodiac, the second on the qualities of the planets, the third on the aspects and dignities of the planets, the fourth on the celestial houses, the fifth on accidental dignities, the sixth on the calculation of the astrological figure, and the seventh on the main signifiers of the figure (including the lords of the houses, hyleg, alcocodem, and the parts).

This small treatise follows the same line as the larger ones by Delgado, Dias and Fallon, but more summarized. Unlike the former texts it does not include an initial apologetic section or an introduction stating its purpose, presenting only the astrological doctrine. However, it appears to be part of a larger programme, since it mentions previous lessons on the sphere. There are other evident similarities with the larger treatises, in particular in part seven which concerns interpretation. The emphasis is placed in the same set of signifiers as those

discussed in the nativity sections of the larger texts (see Chapter 11). Another strong similarity is found in the section of the calculation of the astrological figure. It is quite comprehensive for such a small treatise and follows the same style as the other Jesuit texts of Santo Antão. In contrast to the *Introdução astronômica*, which presents no explicit date, the *Princípios de Astrologia* can be dated by the calculation example presented. The computation is made for 1 March 1590, at the meridian of Lisbon, showing when and where the lesson took place; a study of the paper also corroborates this date. The year 1590 is particularly significant as it falls at the very beginning of the *Aula da Esfera*.

There is no direct evidence or a reference to the college or author that can attest with absolute certainty that either of these two texts are from Santo Antão. However, the structure of the lessons, the mathematical detail (particularly the *Princípios de Astrologia*), the date and place, the use of Portuguese and not Latin, and most importantly, the context of this miscellany, present a strong case for this material to be from the *Aula da Esfera*. The latter condition is particularly relevant since the CPN 38.2 miscellany together with the Egerton 2063 codex are part of the same collection of papers from Santo Antão. The details of this connection will be presented below, but this fact further reinforces the arguments for an origin in the *Aula da Esfera*. If this assumption is correct, then these texts, and in particular the *Princípios de Astrologia*, are not only the earliest evidence of astrological teachings in the *Aula*, but also some of its earliest known texts. Again, this would imply that either they are an early version of astrological lessons by João Delgado, or perhaps the missing lessons and texts by Francisco da Costa, or another teacher from this period.

Table 10.13 – Table of contents of *Princípios de Astrologia*

Chapter original title	Chapter translation
[Parte primeira]	[First part]
Cap. primeiro [introdução]	Ch. 1. [introduction]
Cap. 2º da repartição dos signos	Ch. 2. On the division of the signs
Cap. 3º das calidades das 4º quartas do zodiaco	Ch. 3. On the qualities of the 4 quarters of the zodiac
Cap. 4º das triplicidades dos signos	Ch. 4. On the triplicity of the signs
Cap. 5º dos signos imperantes e ubidentes	Ch. 5. On the command and obeying signs
Cap. 6º dos signos comcordantes	Ch. 6. On the agreeing signs
Cap. 7 da calidade de cada signo	Ch. 7. On the quality of each sign
Parte 2ª	Second part
Cap. 1º de [Saturno]	Ch. 1. On Saturn
Cap. 2º de [Júpiter]	Ch. 2. On Jupiter
Cap. 3 de [Marte]	Ch. 3. On Mars
Cap. 4 do [Sol]	Ch. 4. On the Sun
Cap. 5 de [Vénus]	Ch. 5. On Venus
Cap. 6 do planeta [Mercúrio]	Ch. 6. On the planet Mercury
Cap. 7º da [Lua]	Ch. 7. On the Moon
Cap. 8 da [Cabeça] [Cauda]	Ch. 8. On the Head and Tail of the dragon

Parte terceira	Third part
Cap. 1º [aspeitos]	Ch. 1. [aspects]
Cap. 2 da maneira que os astrólogos nomearão estes aspeitos	Ch. 2 on the manner that the astrologers named these aspects
Cap. 3º dos poderes que tem os planetas nos signos	Ch. 3. On the powers the planets have in the signs
Cap. 4º das treplisidades dos planetas	Ch. 4. On the triplicities of the planets
Cap. 5º dos términos dos planetas	Ch. 5. On the terms of the planets
Cap. 6º dos signos antisios	Ch. 6. On the signs in antiscion
Cap. 7 dos signos opostos	Ch. 7. On the opposing signs
4ª parte	Fourth part
Cap. 1º da repartição das 12 Cazas selestes	Ch. 1. On the figure of Conception and of nativities
Cap. 2º das 4º quartas selestes	Ch. 2. On the four celestial quadrants
Cap. 3º das 2as ametades do seo	Ch. 3. On the two halves of the heaven
Cap. 4º dos 4º angulos do seo e dos susedentes e cadentes	Ch. 4. On the four angles of the heaven and the succedent and cadent [houses]
Cap. 5º da primeira caza e seus efeitos	Ch. 5. On the first house and its effects
Cap. 6º da 2.ª caza	Ch. 6. On the second house
Cap. 7º da 3.ª caza	Ch. 7. On the third house
Cap. 8º da 4ª caza	Ch. 8. On the fourth house
Cap. 9º da 5ª caza	Ch. 9. On the fifth house
Cap. 10º da 6ª caza	Ch. 10. On the sixth house
Cap. 11 da 7ª caza	Ch. 11. On the seventh house
Cap. 12 da 8ª caza	Ch. 12. On the eighth house
Cap. 13 da 9ª caza	Ch. 13. On the ninth house
Cap. 14 da 10ª caza	Ch. 14. On the tenth house
Cap. 15 da 11ª caza	Ch. 15. On the eleventh house
Cap. 16 da 12ª caza	Ch. 16. On the twelfth house
Quinta parte	Fifth part
Capitulo primeiro da Elevação dos planetas	Ch. 1. On the elevation of the planets
Cap. 2º dalmugea dos planetas	Ch. 2. On the <i>almugea</i> of the planets
Cap. 3º da amizade e odio dos planetas	Ch. 3. On the friendship and hate of the planets
Cap. 4º das fortalezas e fraquezas dos planetas	Ch. 4. On the strengths and weaknesses of the planets
6ª parte	Sixth part
Cap. primeiro [o tema figure]	Ch. 1. [the celestial figure]
Cap. 2º da igoalção do [Sol] e demais planetas	Ch. 2. On the equalization of the Sun and the planets
Cap. 3º de levãotar figura	Ch. 3. On erecting the figure
Cap. 4º do 2º modo de alevãotar figura	Ch. 4. On the second manner of erecting a figure
Cap. 5 do modo de lansar ou asentar os planetas nas 12 cazas	Ch. 5. On the manner of placing or annotate the planets in the twelve houses
7ª parte	Seventh part
Cap. primeiro como se tirão os sinificadores da figura	Ch. 1. How are obtained the significators of the figure
Cap. 2 dos senhores das 12 cazas	Ch. 2. On the lords of the twelve houses
Cap. 3 do animodar	Ch. 3. On the animodar
Cap. 4 das partes	Ch. 4. On the lots
Cap. 5 do ille	Ch. 5. On the hyleg
Cap. 6 da alcaquodem uel o que da vida	Ch. 6. On the alcocodem, that is, that which gives life

A treatise on practical astrology

This third text, entitled *Tratado da astrologia pratica* (‘Treatise on Practical Astrology’), is currently held in Biblioteca Publica Municipal do Porto, Ms. 1895 (hereafter BPMP Ms. 1895).

It was written in 1641, which is stated as the ‘current year’, possibly in Lisbon.⁴⁸³ The text has a different nature than the two above, since it is not an isolated lesson on the foundations of astrology, but a part of a larger treatise on mathematics containing three sequential and interconnected texts on mathematical topics: the first on theoretical astronomy, *Tratado da esphera natural, celeste, e da artificial e do seu uso* (‘Treatise on the Natural, Celestial and Artificial Sphere, and its use’, pages 1-202), follow by the astrological text (pages 203-286) and a last one on arithmetic (‘Treatise on Arithmetic’, pages 287-324). Although there is no direct connection to the Jesuits or to Santo Antão, the manuscript presents several characteristics which suggest a Jesuit origin. The first is its structure and the arrangement of topics which are quite similar to other Jesuit astrological texts from the *Aula da Esfera*. The second is the careful and detailed presentation of the topics with a strong emphasis on calculation; the third is once more the fact that it is written in Portuguese like the texts of Santo Antão, suggesting a public class; lastly is the author’s attention to the matters of forbidden practices of astrology and dealing only with the part of astrology considered lawful. After mentioning the usefulness of astrology, he mentions the exaggeration of the ancient astrologers and the necessary restrictions of the index and of the bull, which he follows:

Taking as a task the erecting of a figure on these things that are permissible as are agriculture, navigation, and medicine, we shall say how it can be done, declaring in two chapters what are the divisions of the celestial signs, the strengths and debilities, the aspects, and the twelve houses of the figure; and in the other [chapter], the universal and particular judgements of the weather, with which the astrologer will have what is needed to erect a figure and judge it in the matters that are permitted to the Catholic mathematician.⁴⁸⁴

The treatise of astrology is organised in two chapters: the first is divided into eight sections and deals with the foundations of astrology, while the second, divided into four sections, presents the various methods for judging the weather. The author avoids altogether the topic of nativities, even in the context of medicine, and elections, the two divisions of astrology more prone to debate on the crucial matters of free will and chance events.

⁴⁸³ BPMP Ms. 1895, page 17. The main text mentions Lisbon, although at a later moment the same hand that copied the text also added the height of the pole for Coimbra and Guimarães.

⁴⁸⁴ Tratando pois de levantar figura sobre estas cousas em que se permite como he a Agricultura, Navegação, e Medicina, diremos como se possa fazer, declarando em dois capítulos qual seja a divisão dos signos celestes, suas fortalezas e debilidades, e Aspectos, e das 12 casas da Figura. E no outro dos Juizos Universaes e particulares dos tempos, com que ficara o Astrologo tendo o Necessario para alevantar figura e para juizo della nas materias que ao Catholico Mathematico se permitem (BPMP Ms. 1895, p. 204).

Table 10.14 – Table of contents of the *Tratado da astrologia pratica*

Chapter original title	Chapter translation
Proem	Proem
Capítulo 1. Dos 12 Signos Celestes.	Chapter 1. On the twelve celestial signs.
Secção 1. De suas diuisiones, e em que partes do corpo humano, e em que terras tenham seu domínio.	Section 1. Of its divisions, and which parts of the body [they rule], and in which lands they have lordship.
Secção 2. Da natureza e influencias dos sete Planetas, e de seu dominio sobre os dias, noites, idades e pessoas.	Section 2. On the nature and influences of the seven planets and of their lordship over the days, nights, ages and people.
Secção 3. Das doze casas e modo de alevantar figura ou thema celeste.	Section 3. On the twelve houses and the manner of erecting the figure or celestial theme.
Secção 4. Das dignidades essenciaes dos Planetas. De seus aspectos enquanto suas boas ou mas qualidades, e da concórdia, e discordia huns com outros.	Section 4. On the essential dignities of the planets. On their aspects as to their good or bad qualities, and the concord or discord among themselves.
Secção 5. Como se iulgara da Fortalesa ou Fraquesa dos Planetas.	Section 5. How to judge on the strength and weakness of the planets.
Secção 6. Dos graos que no Zodiaco são Fortunados, Puteales, Azemenas, Masculinos, Femininos, Tenebrosos, Lucidos, Fumosos, e Vasios.	Section 6. On the degrees that on the Zodiac are fortunate, pitted, azemene, masculine, feminine, dark, light, smoky, and void.
Secção 7. Da Natursas das Estrellas do Firmamento.	Section 7. On the nature of the stars of the firmament.
Secção 8. e ultimo. De Alguns Avisos gerais para os juizos serem acertados.	Section 8 and last. On some general advertences so that the judgements are more correct.
Capítulo 2. Dos Juizos Universais e particulares dos Tempos.	Chapter 2. On the universal and particular judgements of the weather.
Secção 1. Como se ha de Julgar do Tempo pelos eclipses do [Sol] e [Lua].	Section 1. How to judge the weather by the eclipses of the sun and moon.
Secção 2. Como se Julgara do Tempo pellas conuinites [sic] Maximas	Section 2. How to judge the weather by the maximum conjunctions.
Taboa das coniuções passadas dos 2 planetas superiores.	Table of the past conjunctions of the two superior planets.
Secção 3. Do Juizo de cada Anno.	Section 3. On the judgement of each year.
[Dos efeitos dos Planetas nos signos]	[On the effects of the planets in the signs.]
Secção 4 Do Juizo das 4. ^{as} do anno e dias da semana.	Section 4. On the judgement of the fourths of the year and days of the week.

There are several interesting features in this text. One is the technical detail displayed when dealing with the matter of calendars and with the calculation of planetary conjunctions. Another is the use of several diagrams, including a volvelle for the explanation of the calculation of the astrological figure; another interesting feature is the presentation of examples of astrological figures for both an ingress of the Sun in Aries and a Jupiter-Saturn conjunction, which do not appear in any of the other texts.⁴⁸⁵

The quality of the lesson's contents and the fact that they are in Portuguese are very strong arguments for a Jesuit origin. Santo Antônio's *Aula da Esfera* is the default choice since it was the only institution at this point in time to provide this specific mixture of mathematics,

⁴⁸⁵ Another interesting note is the reference to the special degrees that on the zodiac: fortunate, pitted, azemene, masculine, feminine, dark, light, smoky, and void. Although they are in some astrological texts of this period, they are considered one of the nonsenses of the Arabs and thus not mentioned in the Jesuit texts.

technical expertise, and philosophical debate in Portuguese. Thus, if this manuscript is related to Santo Antão, it would fall in the teaching years of Jan Ciermans (1604-1648), who lectured between 1641 and 1642, and whose involvement with astrology will be addressed below.

Another possibility is that this material could be from a class on mathematics from another college such as Coimbra's Colégio das Artes. This would explain why one of the example figures on the texts are calculated for the latitude of 40° which would be the one used for Coimbra. According to Ugo Baldini no official classes on mathematics are recorded in this year, which means that this would have to be a non-curricular or private class, such as those taught by Simon Fallon between 1628 and 1631 using a similar model.⁴⁸⁶ Yet, the other example chart appears to be calculated for the latitude of Lisbon, which might dismiss this hypothesis.

Notwithstanding the lack of a definite proof of a Jesuit origin for this text, or the exact place where it was taught, it is another excellent example of college level teaching, and of the integration of astrology as the practical part of astronomical and mathematical knowledge.

The students of the *Aula da Esfera*

The impact of the astrological classes of the *Aula da Esfera* can perhaps be further ascertained by looking at its students. Although no list of those attending Santo Antão's *Aula da Esfera* is known, and an in-depth research on this topic is still required, there is enough material to make an assessment. Several prominent figures of Portuguese history were students of Santo Antão, most of them reputed for their knowledge of mathematics.⁴⁸⁷ Among them are the cosmographers Manuel de Meneses (c.1565-1628), who was a disciple of João Delgado, and Luís Serrão Pimentel (1613-1679), as well as his two sons, Manuel Pimentel (1650-1719), who also became chief cosmographer and the kingdom's engineer, and Francisco Pimentel (1652-1706), who was professor of engineering. The physician Manuel dos Reis Tavares (1590-1686) was also among the students of Santo Antão. He wrote two treatises on medicine which include some considerations on astrology.⁴⁸⁸ Another famous physician to attend Santo Antão's classes

⁴⁸⁶ Until 1692 there are evidences of the teaching of mathematics, but this appear to have been infrequent and private as pointed by Baldini, 'The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal', 384.

⁴⁸⁷ Rodrigues, *História da Companhia de Jesus na Assistência de Portugal*, 1944, III-1:186-88; Leitão and Martins, *Sphaera mundi*, 19.

⁴⁸⁸ Manuel dos Reis Tavares, *Controversias philosophicas, et medicas. Ex doctrina de febris* (Lisboa: João da Costa Senior, 1667); *De duobus magnis artis medicae auxilijs Tractatus duplex: in quo difficiliore, quaestiones circa sanguinis missionem, et purgationem non tantum utiles, sed necessariae Medicinam exercentibus exacte pertractantur*, 2 vols (Lisboa: Antonio Craesbeeck de Mello, 1671).

is the aforementioned Manuel Bocarro Francês, also known as Jacob Rosales, and the author of various texts on astrology, comets and prophecy. He studied in Santo Antão sometime in the first decade of the sixteenth century and completed his education in the universities of Alcalá de Henares and Sigüenza. After 1624 he was in exile due to his patriotic prophecies and Jewish origins and corresponded with several well-known figures among which was Galileo Galilei.

Astrology and the *Aula da Esfera* in the aristocratic milieu

Several members of Portuguese nobility also attended the *Aula da Esfera*; for example, Fernando de Meneses, 2nd count of Ericeira (1614-1699), who had a successful military career and was praised by his contemporaries for his skills in mathematics and military architecture. He learned with Cristoforo Borri who taught the *Aula* in 1627 and 1628, and with Ignace Stafford (1599-1642), who lectured between 1630 and 1636.⁴⁸⁹ Other examples from the aristocratic background are figures such as António de Sousa de Macedo (1606-1682), who was diplomat and secretary of state and considered the first Portuguese journalist, and also Francisco Manuel de Mello, a military man, and a celebrated writer and poet who had family connections to the house of Bragança.

Among the known students of Santo Antão, one of the most notable is Francisco de Melo e Torres, 1st count of Ponte and 1st marquis of Sande (1620-1667). Son of the second marriage of Garcia de Melo e Torres, Capitan and overseer of the treasury in India, and Margarida de Castro, he held several governing and military posts and was a pivotal figure in the restauration of Portugal's independence from Spain. He was part of the group of noblemen, known as the forty conspirators, who organized the plot that placed João IV on the Portuguese throne. Melo was ambassador in England between 1657 and 1660, and again in 1661, and between 1662 and 1665, where he concluded the negotiations of the marriage of Catarina of Bragança, daughter of João IV, with Charles II. He was also ambassador incognito in France from 1662 to 1663 and then from 1664 to 1666 to negotiate the marriage of Afonso VI, then king of Portugal, with Maria Francisca of Savoy. The life of Melo e Torres ended abruptly in 1667 when he was murdered for unclear reasons.⁴⁹⁰

⁴⁸⁹ Diogo Barbosa Machado, *Bibliotheca Lusitana Histórica*, vol. 2 (Lisboa: Oficina de Inácio Rodrigues, 1747), 42–45.

⁴⁹⁰ For his biography and life see Teresa Schedel, *Vida de Francisco Mello Torres, 1º conde da Ponte, Marquês de Sande: soldado e diplomata da restauração 1620-1667* (Lisboa: Livraria Ferin, 1971); Virgínia Rau, *Livro de cartas que escreverão ao ilustríssimo senhor Francisco de Mello, Marques de Sande, sendo embaxador extraordinario em Inglaterra, e França em os annos de 658 athe 665* (Lisboa: Centro de Estudos Históricos, 1969).

The knowledge and interest of Francisco Melo e Torres for mathematics was fully noted by his contemporaries and biographers; among his works are listed a text on astronomy and a treatise of geography written in 1637.⁴⁹¹ Sometime at the age of six or seven he began his studies at Santo Antão where he learned Latin and humanities, before proceeding to the *Aula da Esfera* where he learned mathematics and military architecture. Although there are no direct references to who his teachers were, if he started to attend the college around 1626, he likely crossed paths with Johann Chrysostomus Gall (1586 -1643), Borri, or Stafford. There are several manuscripts of the *Aula da Esfera* copied by Francisco de Melo, from the years of 1628, 1633, and 1637, most are classes by Stafford, and others by Simon Fallon.⁴⁹² This suggests that his mathematics teacher was likely Stafford who taught from 1630 to 1636. By 1636, at the age of 16, he had finished his studies as he received his first military commission in Setúbal. However, the existence of copies of works by Fallon by Melo show that his interest in the mathematical sciences continued, and his own writings on astronomy and geography date from 1637 and 1638.⁴⁹³ This interest had a more lasting impact on the current knowledge of the *Aula da Esfera* than previously perceived. Besides the various copies of the lessons of his time as a student, Melo also collected many other scientific papers and manuscripts from Santo Antão. The two major testaments of his collection are the aforementioned Egerton 2063 manuscript, and the CPN 38.2. The first gathers one of the largest and varied set of manuscripts from the *Aula*, containing some of the oldest know texts. The second also includes a miscellany of papers, most from Santo Antão, some complementing the incomplete texts of the Egerton 2063, and which have still to be studied. Both the Egerton 2063 and CPN 38.2 were part of Francisco de Melo's collection and their arrangement suggests that they were likely two different volumes of the same collection of papers. While CPN 38.2 remained in the family papers, the Egerton 2063 manuscript was acquired by British Museum as part of a set of eighteen codices purchased from the Conde da Ponte in 1868.⁴⁹⁴ These two codices show that Melo managed to gather

⁴⁹¹ Machado, *Bibliotheca Lusitana Histórica*, 1747, 2:202–3.

⁴⁹² See Leitão and Martins, *Sphaera mundi*, 125–27, 139–40, 143, 157–58, 240.

⁴⁹³ Several of his own scientific papers survive in the family archive, among them the manuscript for his aforementioned treatise of geography and others on cosmography, geometry, trigonometry, and military architecture. These can be found in Lisboa, Arquivo Nacional da Torre do Tombo, Arquivo dos Condes da Ponte, Caixa 21.

⁴⁹⁴ The seller of the manuscripts was João de Saldanha da Gama, 8th Conde da Ponte. According to a letter preserved in the records of the British Library the acquisition was made on 10 October 1868 (British Library, *Papers Relating to the Purchase and Acquisition of Manuscripts 1866-1870*, fols. 349r-350r). The letter mentioned that the main motivation for the purchase were the codices containing documents relating to Melo e Torre's period as ambassador in England, and it is mentioned that only one of the codices was not related to this topic. A quick view of the 18 manuscripts shows the odd codex to be Egerton 2063, which probably was sold by accident. I thank Dr. Scot McKendrick, Head of Western Heritage Collections at the British Library for his help in obtaining this information.

several copies or original papers from the teachers of the *Aula da Esfera*, dating from its very beginning. To accomplish such task, he must have had strong connections to Santo Antão and the Jesuits, but the particulars surrounding this collection have yet to be fully researched.

Francisco de Melo e Torres, previously considered an important figure of seventeenth-century Portuguese politics, becomes now an important figure of the scientific heritage of this period. Despite only having a pre-university training, he is an example of the impact of Santo Antão and the *Aula da Esfera* in Portuguese education by providing their students with a substantial knowledge on mathematics and other technical matters. Among these practical knowledges was astrology, which appears to have been one of Melo's interests considering the number of astrological texts and papers he gathered.⁴⁹⁵ The number of manuscripts of Santo Antão preserved in his collection, several of them dating from the early decades of the *Aula da Esfera*, can be considered one of the most valuable contributions to the Portuguese scientific heritage.

Jesuits and astrology at the court

The diffusion of astrology in the highest levels of society by the Jesuits was not limited to the nobles; it also had a strong presence in the court. As mentioned before, Luís Gonzaga's notes 'On the Astrological Figure' in Ms. 46-VIII-22 (fols. 75r-76v), testify that they were used to teach the princes astrology as a part of their mathematical education. However, one of the most noticeable examples involving Jesuit instructors and astrology, comes directly from the royal house and regards João IV's heir, Prince Teodósio. Born in Vila Viçosa in 1634, six years before the coup that placed his father in the throne, Teodósio received the education of a high nobleman of the Bragança heritage, being highly praised for his intelligence and devotion. As the first born, he was in line to be the next king of Portugal, but died of tuberculosis at the age of nineteen on 15 May 1653. His death was a heavy blow for the newly started dynasty, as his brother, who became King Afonso VI, was mentally and physically impaired. Teodósio became, even in life, a mythical figure of the Portuguese Restoration in the same line as his father, as displayed in the astrological reports of his birth by Francisco Guilherme Casmach and later by António Vieira. Indeed, astrology apparently played an important role in the prince's life. All accounts of his life speak of his love for astronomy and astrology: he had a collection of nativities of his ancestors and family, made several predictions regarding his brothers and

⁴⁹⁵ At least three in the Egerton manuscript, three others in CPN 38.2, and Cod. 2127 by Fallon.

sisters, and wrote a treatise on astronomy and astrology at the age of twelve. One of the first biographies of the prince, *Theodosius Lusitanus, sive Principis perfecti vera effigies*, written by the Jesuit Manuel Luís (1608-1682), confirms Teodósio's interest for astrology.⁴⁹⁶ It is stated that his interest for the topic was such that he had to be kept away from his astronomy books in order to attend to his other duties. Teodósio's treatise is also described in this book. Entitled *Summa Astronomica in duos divisa Libros; Primus de Astronomia; Secundus de Astrologia: Auctore D. Theodosio Lusitano Anno aetatis suae duodecimo, & labente 1646*, it was divided into a first treatise on astronomy with over thirty chapters dealing with the celestial and terrestrial sphere, and a second on astrology, in two parts, one dealing with nativities in fourteen chapters and the other with annual revolutions in ten chapters.⁴⁹⁷ Manuel Luís also mentions in several instances astrological information regarding the life of the prince, including a description of the main features of his birth figure, quoting a eulogy by Friar Luís de Sá:⁴⁹⁸

In the figure (he says) of the nativity of his most serene prince the ascendant or horoscope was Leo, house of the Sun and triplicity of Jupiter. The two luminaries, the sovereigns of the stars, the Sun and Moon, then at that time illustrated our visible hemisphere, he in the Orient, she in the Occident. Jupiter, the benign star, is greater in good fortune, according to the astrologers, in the sign of Gemini, the house of Mercury, within the terms of Mars, aspecting the Sun by a trine aspect, of true friendship, although in a succedent house, preceded the other planets in dignity; and according to the more preferable doctrine of the astrologers, was the almutem or lord of this nativity. The second in dignity or strength was Saturn, in a succedent house, in the sign of Sagittarius, the house of Jupiter, aspecting the Sun by sextile and, made fortunate by the reception of [its] light.⁴⁹⁹

The biographer, despite being a member of the Society, is quite comfortable with these astrological references and with astrology's role in the life of the prince. He makes sure to mention, however, that the astrology which Teodósio learned and practiced was a licit and Christian one, following all the precepts of the Church according to the edits of Sixtus V and

⁴⁹⁶ Manuel Luís, *Theodosius Lusitanus, sive Principis perfecti vera effigies: rerum sub id tempus in Lusitania praeclare gestarum nativis coloribus illuminata* (Évora: Tipografia da Universidade de Évora, 1680).

⁴⁹⁷ Jam verò primus Astronomicus tractatus duobus supra triginta capitibus absolvitur; in quibus universa mundi sphaera tum caelestis, tum sublunaris, juxta illustrium Mathematicorum veterum, & recentiorum exactiores observationes construatur, & expenditur. Secundus Astrologicus dividitur in duas partes; quarum prima quatuordecim capitulis continetur, agit que de humanis orbitis judicandis; secunda, quae decem capitulis clauditur, de annuis revolutionibus dijudicat. Luís, fol. 52v. Unfortunately, there is no notice of this manuscript in current catalogues.

⁴⁹⁸ Originally published in Luís de Sá, *Exequias feitas a memoria do Serenissimo Principe, e Senhor Dom Theodosio Primeiro deste nome: celebradas na Capella Real do Hospital da Cidade de Coimbra*, ed. Jerónimo de São Paulo (Coimbra: Manoel Dias, 1654), 12.

⁴⁹⁹ In figura (inquit) nativitatís hujus Serenissimi Principis fuit Ascendens sive Horosopus Leo, Domus Solis, & Iovis triplicitas. Duo luminaria astrorum Principes, Sol, & Luna, tum tempora nostrum visibile hemispherium illustrabant, ille in Oriente, ipsa in Occidente. Jupiter astrum benignum, est juxta Astrologos Fortuna major in signo Gemini, Domo Mercurii, intra terminos Martis aspiciens Solem aspectu trigono vere amicitie, licet in domo succedente caeteris planetis dignitate praecessit; fuitque juxta potiore Astrologorum sententiam hujusce nativitatís figure Almutem, ac Dominus. Secundus in dignitate, seu viribus fuit Saturnus in domo succedente, in signo Sagittarii domo Iovis aspiciens Solem aspectu sextili per luminis receptionem factus Fortuna. Luís, *Theodosius Lusitanus, sive Principis perfecti vera effigies*, fol. 128v.

Urban VIII.⁵⁰⁰ This cautionary remark is likely due to the fact that his instructor was also a Jesuit, and it is in this regard that a connection appears between the prince and the *Aula da Esfera*. Although Teodósio did not attend Santo Antão, a large part of his scientific education was the duty of the aforementioned, Jan Ciermans, who taught the *Aula da Esfera* in 1641-42. Ciermans, also known in Portugal as João Pascásio Cosmander, was born in 's-Hertogenbosch, Netherlands, in 1602. He joined the Society in 1619, studied mathematics in Louvain, and was a teacher there between 1636 and 1641. Ciermans came to Portugal headed for the missions in China but was instead appointed teacher of the *Aula da Esfera*. His work caught the attention of King João IV who named him chief engineer of the kingdom and overseer of the defences in the border with Spain. He participated in several of the military campaigns in the war with Spain and consequently was expelled from the Society in 1646. In 1647 he was captured by the Spanish and eventually changed sides, only to be killed in the next year during the battle of Olivença.⁵⁰¹ He is known for the letter he wrote to Descartes discussing the *Essais* and also published a small treatise on mathematics.⁵⁰²

Ciermans was appointed Teodósio's tutor when the prince was eight and was the likely source of his astrological knowledge. This is stated by a later author, José de Seabra da Silva, in his very influential anti-Jesuit book *Dedução chronologica, e analytica* (Lisbon, 1767), written in the aftermath of the expulsion of the Society from Portugal in 1759.⁵⁰³ He refers to Ciermans when criticising the negative influence of the Jesuits in the prince's education:

When Prince Teodósio had not yet reached the age of nine years old, João Pascásio Cosmander [i.e. Jean Ciermans] of the Society of Jesus (...) was introduced in the role of tutor of mathematics. That abominable Jesuit was thus determined, not to enlighten, but to corrupt the innocent spirit of said prince; as he did to the point of making him believe that by astronomy and astrology he could foretell [the future].⁵⁰⁴

⁵⁰⁰ In Iudiciaria tandem Christiana, & licita juxta Sanctissimi Xisti quinti, & Urbani octavi decreta, quibus solùm damnantur Astrologi liberae voluntati necessitatem ex Astrorum influxibus inducentes, perpetuò abstinuit à libris Romano Catalogo, aut Editali Sanctae Inquisitionis prohibitis. Luís, fol. 155v.

⁵⁰¹ Baldini, 'The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal', 384-85; Regarding Ciermans' role in Portugal's war with Spain, see Lucca, *Jesuits and Fortifications*, 127-30.

⁵⁰² Jan Ciermans, *Disciplinae mathematicae traditae anno Institutae Societatis Iesu seculari* (Lovain: Everardum de Witte, 1640).

⁵⁰³ José de Seabra da Silva, *Dedução Chronologica, e Analytica. Parte Primeira, na qual se manifestão pela successiva serie de cada hum dos Reynados da Morarquia Portugueza, que decorrêrão desde o Governo do Senhor Rey D. João III. até o presente, os horrorosos estragos, que a Companhia denominada de Jesus fez em Portugal, e todos seus Dominios, por hum Plano, e Systema por ella inalteravelmente seguido desde que entrou neste Reyno, até que foi delle proscripta, e expulsa pela justa, sabia, e providente Ley de 3. de Setembro de 1759*, vol. 1 (Lisboa: Miguel Manescal da Costa, 1767).

⁵⁰⁴ Quando o Principe D. Theodosio não havia ainda cumprido nove annos, lhe introduzirão a titulo de Mestre de Mathematica a João Pascasio Cosmander da Companhia de Jesus (...). Aquelle abominável Jesuita foi pois determinado, não para illuminar, mas antes para corromper o innocente Espirito do referido Principe; como corrompeo, até o ponto de lhe fazer crer, que pela Astronomia, e Astrologia, podia adivinhar. Silva, 1:216-17.

Here the teaching of astrology is clearly being instrumentalized by the anti-Jesuit discourse, but given the narrative in *Theodosius Lusitanus*, it is most likely based on true facts.⁵⁰⁵ There were many other figures that could have been accused of teaching astrology to the prince, António Vieira being one of them due to his connections with the court, but only Ciermans is specifically mentioned. There are no known records of Ciermans' lessons at the *Aula da Esfera*, so it becomes difficult to attest if astrology was part of them. However, considering these statements by Seabra da Silva and the fact that in the two years before Ciermans became teacher, Simon Fallon had taught astrology at Santo Antão, it would not be a surprise for Ciermans to have also included it in his classes. This would expand the teaching of astrology at the *Aula da Esfera*, and by Jesuits, a little further into the 1640s decade, a period of intense publishing and circulation of astrological material in Portugal.⁵⁰⁶ It could have even continued with the next teacher, Hendrick Uwens (1618-1667), who came to Lisbon with Ciermans and replaced him as teacher from 1642 to 1646.⁵⁰⁷ There is also evidence that the prince regularly received astrological reports from a member of the Society well versed in both astronomical observation and astrological prognostication, a topic that will be fully developed in Part Four.⁵⁰⁸

The public perception

The example of Prince Teodósio is also relevant to further understand the public perception of the Jesuits as teachers of Astrology. Anti-Jesuit literature presents other associations of Jesuits with astrology. Another noticeable example can be found in the *Compendio Historico do estado da Universidade de Coimbra* (1772).⁵⁰⁹ This work discusses the several damages the Jesuits have caused in the University of Coimbra and all classes in the kingdom. In the appendix to the second chapter, the text discusses several 'atrocities' caused by their use of the doctrines of Aristotle. Astrology is discussed after the 'Seventh Atrocity' which addresses the relaxation caused by the 'Aristotelian-Jesuit atheism' which impelled them to write and turn into dogma

⁵⁰⁵ Luís, *Theodosius Lusitanus, sive Principis perfecti vera effigies*, fol. 155v.

⁵⁰⁶ As are examples the almanacs by Francisco Guilherme Casmach and by Manuel Bocarro Francês discussed in Chapter 9. For an account of astrological publications in Portugal in this period see: Carolino, *A escrita celeste*; and *Ciência, astrologia e sociedade*, 199–236.

⁵⁰⁷ Baldini, 'The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal', 386. There are, however, no known astrological lessons by Uwens as there is only one known manuscript from his physics classes. See Leitão and Martins, *Sphaera mundi*, 180.

⁵⁰⁸ On this matter see Ribeiro and Leitão, 'Astrology with New Eyes: The Telescope in Astrological Prognostication'.

⁵⁰⁹ *Compendio historico do estado da universidade de Coimbra no tempo da invasão dos denominados Jesuitas e dos estragos feitos nas sciencias e nos professores: e directores que a regiam pelas maquinações, e publicações dos novos estatutos por elles fabricados* (Regia Officina Typografica, 1772).

‘another vice so great as that of magic’.⁵¹⁰ Then in the ‘Eight Atrocity’ is stated that this same loosening of principles led to ‘another vice so huge, so pernicious, and so much reprov’d, as is that of Judiciary Astrology’.⁵¹¹ Of all the injuries in this matter two doctrines stand out:

The first doctrine. That a divination made through the stars can be free from all sin when combined with the other habits of any man; because the stars and the personal character of a man can have enough strength as to incline his will towards a certain experience, but they do not compel him. The second doctrine. Chiromancy, and the abovementioned astrology, are permissible if they prognosticate certain things only as probable.⁵¹²

Thus, this remark on the teaching of astrology and of chiromancy, together with the above on the education of Prince Teodósio, shows the effectiveness of astrology as one of the weapons of the campaign of the Marquis of Pombal against the Society. This attack was founded on the notion that the Jesuit education system was the main culprit for the illiteracy and scientific backwardness of Portugal, and thus one of the main obstacles for the kingdom’s progress. This argument became so effective and resilient that even twentieth-century Portuguese historiography on the Jesuits was highly tainted by it. By the mid-eighteenth century and in the mindset of the Enlightenment, the teaching of astrology by Jesuits was a perfect argument. By this time astrology was repudiated among the educated as a backward and superstitious belief. The fact that the Jesuits had taught it only reiterated the retrograde state of their teaching enterprise; the involvement of chiromancy, which was introduced as an independent course by Gonzaga and Vieira, only reinforced the argument. This weaponised use of astrology, amidst much stronger arguments, reveals that, to a considerable extent, there was in the public perception a clear link between the Jesuits and the teaching of astrology in Portugal, either at the court, or in the programmes of Santo Antão and Coimbra. This is a further indication that for the most part these astrology classes were public and a well-known fact, to the extent that they could be used as an effective argument against the Jesuits.

Knowledge as social status: the public exams

Another strong testimony of the public visibility of the astrology classes are the final exams of the college. At the end of their studies it was usual for the students of Santo Antão to make a

⁵¹⁰ *Compendio historico*, 396.

⁵¹¹ *Compendio historico*, 398.

⁵¹² Primeira Doutrina. Huma Adivinhação feita pelos Astros póde ser izenta de todo o peccado, quando he combinada com os costumes de qualquer homem: porque os Astros, e o caracter pessoal de hum homem, podem ter a força de inclinarem a sua vontade a hum acontecimento, posto que não tenham a de o necessitarem para ele. Segunda Doutrina. A Chiromancia, e a mesma Astrologia, se prognosticam certas cousas, sómente como provaveis, são permitidas. *Compendio historico*, 398–99.

public final exam, the thesis, a common practice in Jesuit teaching establishments.⁵¹³ In them the student presented his knowledge in the form of an answer to two or three questions on different subjects. Unfortunately, there are no examples of these exams from the seventeenth century, but there are a few from the early eighteenth century. The answers of the students were printed in small booklets or in larger poster-like sheets, some decorated with engraved frontispieces, other with a less luxurious ornamentation. The decorative investment and the presentation in print were an essential part of the performance. These final exams or theses were, on one hand, a public showcase for the success of the educative enterprise of the Jesuit colleges and, on the other, a means for the student to obtain social legitimation and status. One of the few surviving exams includes astrology among its topics of discussion. This inclusion of astrology in a thesis reveals that, even in such a late period, the teaching of astrology in the *Aula da Esfera* was perfectly included in public presentation of the Jesuits and its colleges, and its credibility was not questioned. It was indeed this kind of visibility that was decades later used against the Society in anti-Jesuit propaganda.

This exam is also important for another reason: it illustrates some of the academic debates surrounding the practice of astrology in such a late period. Thus, its contents must be addressed in more detail. As seen before, by the beginning of the eighteenth century, astrology was still an active topic at the *Aula da Esfera* in the classes by Luís Gonzaga. The student, Hieronymo Nunes, who made his examination in 1703 in front of a board presided by Gonzaga, had as the second topic of his thesis a question on astrology: ‘Whether of all Mathematics Astrology is the most curious?’ (*Se das Mathematicas he a Astrologia a mais curiosa?*).⁵¹⁴ To answer the proposed question, Hieronymo Nunes begins by defining the discipline of astrology, quoting Kaspar Schott:

Astrology is a science that, being founded on the rightful principles of Astronomy, and on natural reasonings, and on good experience, considers the nature of the planets, by means of their natural effects which are not dependent on free will. Because, on anything that is subjected to Divine Power and human will, exact judgements can[not] be made by means of astrological rules, nor even to affirm that such thing as inclinations give way to certain effects. Yet some conjectures can be made, mainly in regard to the weather, sickness, temperaments, and medicinal remedies, and such things, that with due right it is stated that one cannot be an expert in Medicine without being wise in the science of Astrology, and Astronomical principles. From this comes the definition which commonly is given to it, by saying that *Astrology* [is] *a science of knowing the natural effects*

⁵¹³ On this matter see João Pereira Gomes, ‘As Teses e o Problema da Sua Autoria’, in *Jesuitas, ciência & cultura no Portugal moderno*, ed. Henrique Leitão and José Eduardo Franco (Lisboa: Esfera do Caos, 2012), 167–94.

⁵¹⁴ BA Ms. 46-VII-23, fols. XVIr-XIXv, *Conclusões mathematicas e astrológicas*, Lisboa 15 July 1703. The other two questions are on Geometry and Military Architecture.

*through the places and revolutions of the Planets: or as much clearly explained by Schott: Astrology is a science, that through well-known reasonings and physical principles, and assisted by some experiences, obtains the form and virtue that the stars possess to cause some mutations and inclinations in the elements and elementals.*⁵¹⁵

After stating the theoretical and practical divisions of astrology, he then proceeds to make a critique of some of the latter's doctrine. He begins by the celestial houses which he believes to have no real ability to concede the planets special virtues, by which he means that he disbelieves the traditional astrological principle that the position of the planets by houses, gives them domain over certain aspects of life: health, career, marriage, etc. He does give credit to the claim that a planet would acquire a certain level of strength depending on its house placement:⁵¹⁶

It is adequately divided into two parts: Introductory Astrology and Exercising Astrology. Much attention is paid to the latter's operations, and with little reason, to the distribution of the twelve houses, giving to each one a special virtue for certain effects; because I judge them totally useless regarding astrological judgements, by being the first, or second house, etc. Although, the opposite seems to us, taking in consideration, as must be taken, the correspondence with the places of heaven: from which the dignities conceded to Planets can be inferred to have no strength by being precisely more in the first than in the second house, etc.⁵¹⁷

However, Nunes's critical stand on one of the fundamental principles of astrology does not discourage his discussion of its practical applications. Thus, he goes on to discuss the determination of the planetary lord of the year, an important part of any astrological study of the conditions of the year, and essential for weather forecasting. This was a topic of dissension among the astrologers, and frequently the cause of arguments between the writers of yearly

⁵¹⁵ He a Astrologia huma sciencia, que fundada em principios certos da Astronomia, & me razoes naturaes, & boa experiencia, considera a natureza dos planetas por ordem aos effeitos naturaes, que não dependem do livro arbitrio; porque em nada do que esta sojeito ao poder Divino, & vontade humana se pode fazer por regras Astrologicas juizos certos, nem ainda afirmar, como taes as inclinações aos taes effeitos, ainda que se possam fazer algumas conjecturas, principalmente por ordem aos tempos, enfermidades, temperamentos, & remedios medicinaes, & tanto, que com razão se afirma não poder hum sojeito ser perito na Medicina, sem que seja sabio na sciencia da Astrologia, & princípios Astronomicos. De aqui nasce a definição, que commummen[t]e se lhe dá, dizendo, ser a *Astrologia huma sciencia de conhecer os effeitos naturaes pellos lugares, & revoluções dos Planetas*: ou com mais claramente o explica Schoto: *Astrologia, he huma sciencia, a qual com razoes, & principios physicos bem conhecidos, & ajudados de algumas experiencias, alcança a forma, & virtude, que os astros tem para causarem algumas mutações, & inclinações nos elementos, & elementares.* (fol. XVIIv-XVIIIr). Schott's original definition of astrology was presented in Chapter 7.

⁵¹⁶ He is refereeing to the doctrine of angularity, whereby the planets can have different intensities of expressions according to their distance from the horizon and the meridian points, which are considered the strongest. See Part Three.

⁵¹⁷ Em duas partes se faz a sua adequada divisam em Astrologia Introductoria, & Astrologia Exercitatoria. Nas operações desta se attende muito, & com pouca razão à distribuição das doze casas celestes, dando a cada huma virtude especial para determinados effeitos; porque totalmente as julgamos por inuteis por ordem aos juizos Astrologicos, com o respeito de ser a primeira, ou a segunda casa, &c. O contrario porém nos parece attendendo-se, como se deve attender, à correspondencia com os lugares do Ceo: donde se infere nam terem força alguma as dignidades concedidas aos Planetas, por estarem precisamente mais na primeira, que na segunda casa &c. (fol. XVIIIr)

almanacs.⁵¹⁸ After presenting the main variants on this topic he concludes that a ruler should be attributed to each equinox and solstice, which was the general consensus of the educated practitioners:

Of the most difficult issues of this matter is the knowledge of the planet lord of the year: although some intend to reduce it to something less difficult, and consequently less astrological, because it is taken without foundation in the principles of this science. The Astrologers are divided in three classes in the decision on this matter. The first concede this rulership to the planet which is lord of the Equinox of March. The second concede this rulership to the planet which is lord of the December Solstice. The third recognize it in the planet which has dominion over the first hour of the first day of the year. Of these opinions, the one which has some probability is the first, and as such we admit it as being worthy of accessing the lord of the year, but not only in what concerns astrological judgements, because regarding these, [and] rejecting what has been said above, we say that the more correct procedure is to give each quarter of the year its own lord, which should be the planet which obtains the most essential dignities in the entry of the Sun into the Cardinal Signs.⁵¹⁹

He then proceeds to discuss how the planets obtain their strengths, considering them to be obtained not by sign, but by house. Thus, despite not considering the significations of the houses for judgement, he confirms their use regarding planetary strength. Nunes also criticises the judgements of the year derived from a single ingress figure calculated for a specific location and considering that a figure must be cast for each location (or meridian). Otherwise, all judgement will be ‘pure dreams’ and ‘fallible conjectures’ which are ‘sold as scholarly truths.’ In this last statement it becomes quite clear that he is criticising the popular version of astrology and yearly predictions, published in the almanacs, and thus separating the academic or scholarly astrology he studied, from the lower quality version divulged in popular media:

It is not of less [importance] the doubt concerning the place where the Planets receive more vigour and strength in their influence. Despite being the most common belief that they receive it in the signs that they are in; we, following the contrary opinion, considering that the Planets are stronger in their houses; something we do not believe of the head and tail of the dragon, because they have no virtue to influence the effects attributed to them; ... We take as illusory the universal prognostications founded on the operation of one figure alone, cast in only for one region, being that figure useless to judgements for another region; something we narrow down even more, deciding that it

⁵¹⁸ On these dissensions see: Camenietzk and Carolino, ‘Astrologers at War: Manuel Galhano Lourosa and the Political Restoration of Portugal, 1640-1668’.

⁵¹⁹ Dos pontos mais difficultosos nesta materia he o conhecimento do Planeta senhor do anno: por mais que alguns o pertendão reduzir a termos menos difficultosos, mas por isso menos Astrologicos, porque tirados sem fundamento dos princípios desta sciencia. Em tres classes se dividem os Astrologos na decisão deste ponto. Os primeiros concendem este dominio ao Planeta, que for senhor Equinocio de Março. Os segundos concedem este dominio ao Planeta, que for senhor do Solsticio de Dezembro. Os terceiros o reconhecem no Planeta, que domina na primeira hora do primeiro dia do anno. Destas opinioens a que tem alguma probabilidade he a primeira, & como tal a admitimos em quanto a lograr o titulo de senhor do anno, mas não só em quanto aos juizos Astrologicos, porque em ordem a estes, rejeitando as opinioens referidas, affirmamos que mais certos se faram dando a cada huma das quadraturas do anno seu diverso senhor, o qual deve ser aquelle Planeta, que lograr de mais dignidades essenciaes na entrada dos Sol em os Signos Cardeaes. (fol. XVIIIr)

is necessary to adjust the figure when the Meridian changes noticeably, so that they [i.e. the judgements] are not pure dreams that are sold as scholarly truths, despite being no more than fallible conjectures.⁵²⁰

He finishes his answer with an academic remark regarding the possibility of the practice of astrology in polar regions (the parallel sphere), which he considers to be possible but with significant change in the astrological doctrine:

Ultimately some will ask if Astrology can be used in the parallel sphere? Which is commonly denied; but nonetheless we do not deny the possibility of its use, but not in the same manner as is practiced in other zones.⁵²¹

This last statement is revealing of discussions among the academic practitioners of astrology at this time. Like Valentin Stansel's remarks on the use of astrology in southern latitudes a few decades earlier, Nunes is also raising an important topic on the practice of astrology. Unfortunately, also as Stansel, he does not develop this topic further.

⁵²⁰ Nam he menor a duvida sobre o lugar em que os Planetas recebem mais vigor, & força em suas influencias. Nam obstante ser opinião mais commua, de que a recebem nos signos, em que se acham; nós seguindo o contrario temos aos Planetas por mais fortes em suas casas; o que nam entendemos da cabeça, & cauda do Dragam, porque nenhuma virtude tem para influirem os effeitos, que se lhe attribuem; ... Por ilusórios lemos os prognosticos universaes fundados na operação de huma só figura levantada em huma só Zona, por a tal figura ser inutil para della se tirarem juizos pertencentes a outra Zona; o que apertamos ainda mais resolvendo ser necessario variar de figura, havendo notavel variedade de Meridiano, para que não sejam puros sonhos, os que não passando de humas falliveis conjecturas se vendam por verdades estudiosas. (fol. XVIIIr)

⁵²¹ Ultimamente perguntão alguns se na esfera paralela se póde dar uso da Astrologia? O que se nega commummente; mas com tudo lhe não negamos a possibilidade do uso, mas não da mesma sorte, que nas outras Zonas se practica. (fol. XVIIIr)

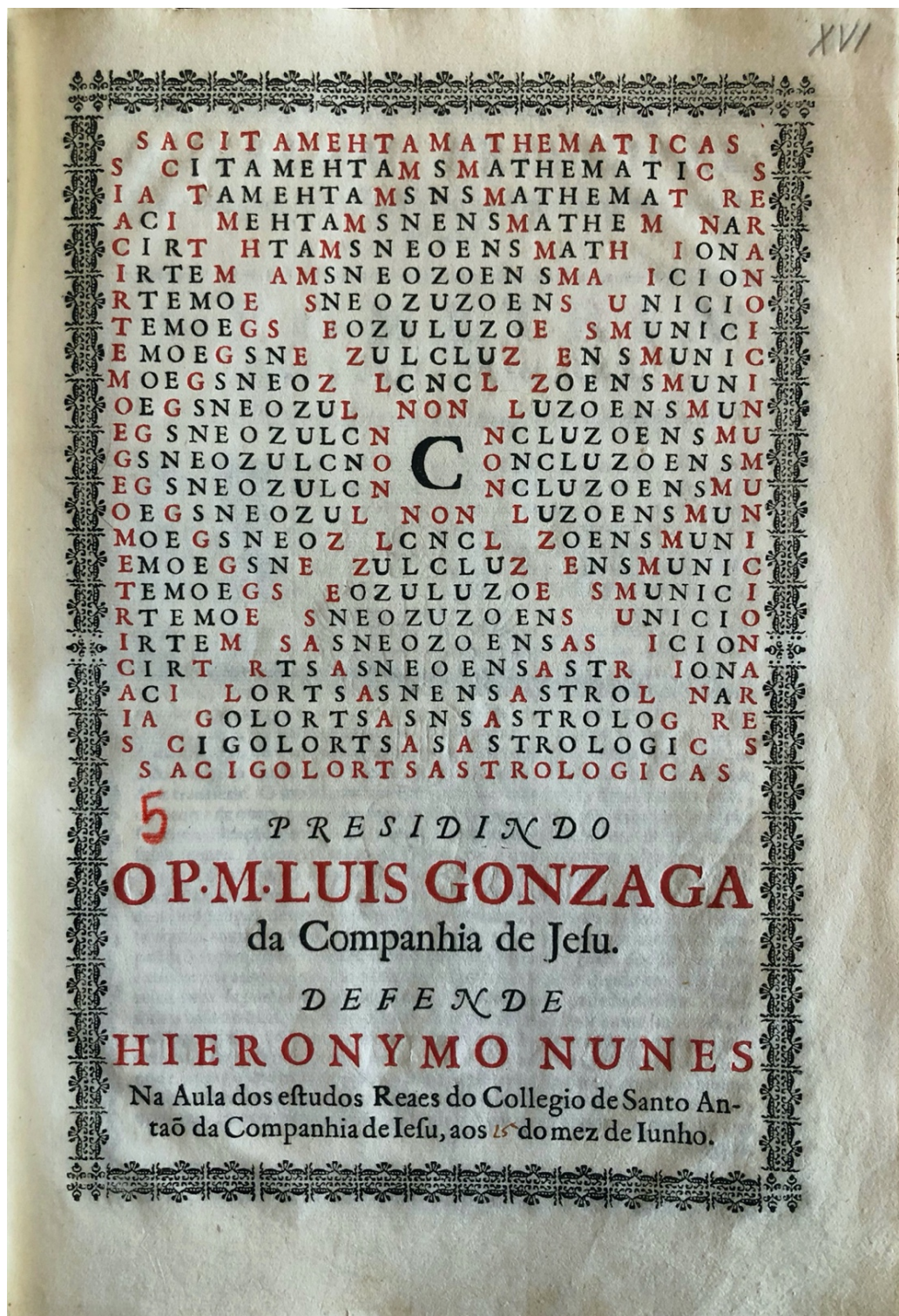


Figure 10.8 – Cover of *Conclusões mathematicas e astrológicas*, BA 46-VII-23, fol. XVIr

The title words are made into a smart two-colour puzzle of letters. This care in the décor, here in a modest form, is revealing of the status these public examinations conferred the students.

Astrology at the *Aula da Esfera*: a timeline

Before the *Aula da Esfera* was created, the only recorded teaching of the sphere in Santo Antão is the aforementioned class by Francisco Rodrigues. It was active between 1553 and 1556, after which Rodrigues went to Goa. Little is known about this class rather than the fact that it existed, making it impossible to measure what part astrology would have played in it, if any. However, among Rodrigues' known writings a manuscript text is mentioned that contained what appears to be the judgement of a lunar eclipse that he observed in Goa on 28 October 1566 (*Juizo sobre o eclipse da Lua, que se vio em Goa a 28. de Outubro de 1566. o qual durou três horas e meya*).⁵²² The use of the word 'judgement' (juízo) in the title implies this to be an astrological account of the eclipse and not a mere astronomical observation; the latter would be titled differently. Unfortunately, so far, this document has not been found in any Portuguese archive, thus its astrological content remains unknown. Even so, its existence makes a strong case for Francisco Rodrigues being not only knowledgeable of astrology, but also to some extent, a practitioner. He could even have taught it in Santo Antão as part of his early lessons on the sphere: perhaps even later in the college of São Paulo in Goa, of which he was rector, although there is no clear record of mathematics and astronomy being taught there.⁵²³

After the inauguration of the *Aula da Esfera* in 1590, the first recorded lessons of astrology are those by João Delgado in 1607. Before this there is Francisco da Costa's reference to the judicial astrology treatise he wrote, and the account by Manuel Figueiredo stating that Costa taught astrology in Santo Antão, although privately. This would have occurred before 1602, the date he mentions his text, during his time as the assistant to João Delgado sometime between 1591 and 1602. Unfortunately, his astrological writings have either not survived or are still to be identified. So far, the only text that mentions astrology and can be safely attributed to him is the abovementioned chapter on how to calculate the position of the astrological houses (Egerton 2063, fols. 118v-119r) from his treatise on the construction of celestial globes. As Costa was Delgado's pupil and assistant, and considering Delgado's lessons of 1607, it is reasonable to assume that Delgado could also have taught astrology in the initial years of the *Aula da Esfera*. By 1607 Delgado's teachings on astrology are not isolated, but part of a larger

⁵²² Machado, *Bibliotheca Lusitana Histórica*, 1741, 1:241.

⁵²³ Most references only state that students were taught how to count, according to Maria de Deus Manso and Leonor Seabra, 'Jesuit Schools and Missions in the Orient', in *In Permanent Transit. Discourses and Maps of the Intercultural Experience*, ed. Clara Sarmiento, Sara Brusaca, and Sílvia Sousa (Cambridge: Cambridge Scholars Publishing, 2012), 180. Baldini suggests that in the absence of mathematics a class on the sphere would be included in the curriculum, see Baldini, 'As Assistências Ibéricas Da Companhia de Jesus e a Actividade Científica Nas Missões Asiáticas (1578-1640)', 205–6.

cosmography programme taught from 1605 to 1607, with judicial astrology being the last subject matter. This shows that at this time astrology was considered as a normal part of the larger mathematics programme of the *Aula da Esfera*. However, in the very last section of this work, when advising the students against the bad uses of astrology, Delgado provides a crucial clue to the early history of the teaching of astrology in Santo Antão:

...and if it [astrology] was not [considered] licit it would not be read by the fathers of Santo Antão, as happened in Lisbon.⁵²⁴

Here he makes two important points. The first is that if astrology was not a licit knowledge, it would not be taught in Santo Antão. The second, and perhaps most important, is Delgado's confirmation that there was a period in the early history of the college and of the *Aula da Esfera*, when astrology was not part of the curriculum due to its suspicious status in the view of the Church. This confirms the assertion by the cosmographer Manuel de Figueredo that, while astrology was a dubious subject, the Jesuits of Santo Antão did not teach it, unless by means of private lessons. This would account for the care that Delgado places in the defence of its practice. If the texts in the CPN 38.2 miscellany are indeed of Santo Antão, as they appear to be, and being pre-1600, they could be examples of this type of lesson, outside the official teaching. This would also explain their simpler introductory nature that contrasts with the more complex programme of in Delgado's course of 1605-1607. Yet, they would still have some kind of relationship with the approved teachings since one of the texts refers to the preceding lessons on the sphere. The teaching of astrology continued with the next professor, Sebastião Dias, who followed in Delgado's footsteps and also gave a course on astrology as part of his cosmography programme sometime between the end of 1612 and 1614.

The following lessons on astrology in the *Aula da Esfera* appear only twenty-five years later in 1639, with the course by Simon Fallon. However, the fact that he taught astrology at the college of Coimbra in 1630, denotes that the subject was included in Jesuit mathematical lessons, at least by some of the teachers. Furthermore, the manuscripts with Delgado's texts circulated at least until the mid 1630s, and perhaps even later. An example of this is the copy on the Spanish manuscript, MSS/8931, which dates from this period. The astrology course by Sebastião Dias had apparently a more restricted circulation, but one of the Egerton copies is by the same hand as the manuscript containing Fallon's early lessons (Cod. 2127), suggesting that the text was still in circulation after the mid 1630's. Despite the fact that Fallon's astrology

⁵²⁴ e que se ela não fora licita não a leram os padres de S. Antão como já aconteceu em Lisboa (Delgado, tr.3, ch.3).

lessons from 1639 circulated at least until the decade of 1660 (Cod. 4331), the following gap is even more noticeable. After Fallon, the only documented lessons on astrology in Santo Antão are those by Luís Gonzaga in 1702, sixty-three years later. Gonzaga's course is the last known occurrence of the teaching of astrology in Santo Antão, but his text might have been in use until at least 1710 when Inácio Vieira was teaching the *Aula da Esfera*.

In sum, there is an almost continuous presence of astrology in the first fifteen years of the *Aula da Esfera*, followed by what appears to be a gap of two decades, followed by a second larger gap of six decades. After the last instance in 1702 there is no more recorded astrology teachings in Santo Antão.

These two gaps can have different interpretations. For one they can simply imply that there was no teaching of astrology in these periods, at least as part of the central programme. Another possibility is that no new materials were produced and the texts from previous teachers were used; there are evidences of this in some of the similarities of argumentation between Delgado and Fallon. Another still, is that the gaps are only caused by the lack of texts that are either still to be identified or were lost after the Society's suppression in 1759. Given other evidences that will be discussed below these teachings were likely more continuous.

A closer look at the teachers in these two intervals reveals that Delgado, Costa, Dias, Fallon and Gonzaga were not the only teachers of Santo Antão that wrote on astrology. The first of these is Cristoforo Borri, who taught the *Aula da Esfera* in 1627 and 1628, and whose teachings of astrology in Millan in 1612 were discussed in Chapter 7. If he continued his past line of teaching, astrology could very well have been included of his lessons, even if only partially. Note that his classes in Lisbon are just a year earlier than Fallon's class in Coimbra.

Before Borri, the teacher of the *Aula* was Johann Chrysostomus Gall (1586 -1643). Known in Portugal by the name Cristóvão Galo, he was born in Konstanz, Germany, studied in Ingolstadt becoming an assistant to Johann Baptist Cysat (1588-1657). Sometime around 1619 he came to Portugal and taught the *Aula da Esfera* until 1627. Although none of his surviving classes address astrology as the central topic, the presence of astrology in Santo Antão's teachings can be seen in his teachings on the sphere. He makes a significant reference to basic astrological concepts in his commentary on the Sphere of Sacrobosco from 1621. Gall identifies the astrology as being part of practical astronomy. Nonetheless, diverging from other Jesuit authors such as Clavius, he criticises the interchanging of the terms 'astrology' and

‘astronomy’. In his mind this creates confusion and exposes the whole science to unnecessary criticism, something he blames on the exaggerations of the uneducated and lazy astrologers:

From it came forth from the ignorant great insults and slanders to all the astronomical science, which must be blamed on the bad curiosity of those astrologers that were more given to leisure and rest than to study.⁵²⁵

There is no practical astrology in the manuscript, which is not uncommon in commentaries to the sphere, but Gall presents some astrological notions when he addresses the signs. He offers the student two memory devices for the assigning of the elements and the qualities to each sign, also addressing briefly the associations of the signs with seasons and ages of men, as well as the definition of the planetary aspects. This shows that even in the apparent lack of specific astrological classes there is some mention of astrological concepts when teaching the sphere.

In the second and larger gap, there is the case of the above-mentioned Jan Ciermans who is known to have taught astrology to Prince Teodósio. His classes of Santo Antão did not survive, but he taught in 1641 immediately after Fallon, who had taught astrology. The Treatise on Practical Astrology (BPMP Ms. 1895), described above is also from this year and it could be a copy of his classes. However, it remains unclear if these lessons were either taught in Lisbon or in Coimbra.

Another teacher of the *Aula da Esfera* was Valentin Stansel, whose discussion of astrology in the *Uranophilus*, and judgements on comets were shown in Chapter 9. It is reasonable to assume that at least some elements of astrology could have been included in his classes. Stansel taught in Santo Antão between 1658 and 1663 and would stand as a mid-point in this larger gap, between Fallon and Gonzaga (for a list of teachers see Appendix II).

Another interesting element to consider in this timeline is the printed material addressed in Part Two. A superimposition of the two reveals an interesting pattern, which begins with the inexistence of astrological texts in the *Aula da Esfera* previous to 1607. The first years of the *Aula da Esfera* coincide not only with the aftermath of Sixtus V’s bull in 1586, but also with the publication of the two first Jesuit anti-astrological treatises, Benito Pereira’s in 1591 and Martin Del Rio’s in 1599-1600. The anti-astrology trend that was quite strong at this time could account why Francisco da Costa only taught it in private, Manuel de Figueiredo’s statement

⁵²⁵ Donde vio a nascer dos nescios grandes afrontas e calumnias a toda a siencia Astronomica, as quaes se deuem lansar as costas da ma coriosidade daquelles Astrologos que forão mais dados ao ocio e descanso, que ao estudo. Lisboa, Biblioteca da Brotéria, *Commentarii in Sphaeram Joannis de Sacrobosco*, by Johann Chrysostomus Gall S.J., fol. 202r.

that astrology was not taught by the Jesuits ‘while there were some reservations as to this science’, as well as João Delgado’s later remark of a time where it was not taught because of its suspicious status. By 1607, when Delgado writes and teaches his *astrologia pratica*, there was a theological environment more accepting of astrology, and in 1608 Francisco Suárez views were made public in his *Opus de virtute, et statu religionis*. This trend continues in the Spanish Index of 1612 which follows the same general guidelines regarding nativities, allowing judgements on the inclinations and corporeal qualities as long as the precepts of the bull were observed.⁵²⁶ Borri’s astrology teaching in Millan also date from this period (1611-1612). Thus, by the end of the first decade of the sixteenth century and during the first half of the second decade astrology emerges more freely among the Jesuits. However, by 1615 the tide seems to turn with the publication of Alessandro De Angelis’s anti-astrological book, *In astrologos coniectores*, as well as Tanner’s *Astrologia sacra*. This also echoes in the astronomical discussions with Biancani’s removal of astrology from the mathematical sciences, and with Scheiner’s criticism of astrology. As a consequence, until the 1630s astrology seems to disappear from Santo Antão’s mathematical curriculum. By this time however the tide seems to change again as can be perceived in Guldin’s views on astrology as part of mathematics, but specially in Sempill’s mathematical treatise, both published in 1635. In 1630-1631 Fallon is teaching astrology in Coimbra as part of his astronomical programme, although in a private class, and later, in 1639 in the *Aula da Esfera*. Urban VIII’s bull of 1631 appears to have no particular impact at this time. It must also be noted that the Portuguese Index of 1624, which was overseen by the Jesuit Baltazar Álvares (1578-1630) gave a wider latitude to the practice of astrology, including nativities.⁵²⁷

Thus, as far as the evidence shows, from 1590 to 1640, the presence of astrology in the *Aula da Esfera* appears to be regulated by the mainstream opinions carried by the printed books. It subsides when the environment is less favourable, and its teaching either becomes private, or disappears altogether. When there is a general acceptance of its practice, it re-emerges openly as part of the main programme. Having been always a sensitive topic within a religious context it is understandable that the teaching of astrology in Jesuit colleges responded with greater sensitivity to its public perception. Bearing this in mind, its apparent disappearance from the programme in the second half of the sixteenth century can be taken as an effect of its growing

⁵²⁶ See Appendix III.B for more details on this matter and also Ribeiro, ‘The Bounded Heavens’, 56–57.

⁵²⁷ Ribeiro, 57–62.

exclusion from mainstream science. There are however significant clues suggesting that its teaching might have continued in the form of private courses, either in Lisbon or Coimbra, or in other Jesuit schools such as Évora. This assumption derives mainly from the large amount of astrological material circulating in this period, such as almanacs in which the Jesuits are occasionally mentioned.⁵²⁸ Apart from the abovementioned examples of Valentin Stansel and António Vieira, material of this type produced by Jesuits, will be dealt with in Part Four.

By the end of the seventeenth century, although some, like Stansel, still considered astrology as a natural part of astronomical studies, a negative view seems to predominate among the Jesuits. Examples of this are the abovementioned anti-astrology booklets by Jacques de Billy (1657), Jean François (1660), and Gian Battista Noceto (1663). A decade later this critical view begins to appear also in scientific treatises. For example, *Mundus mathematicus* by Claude Dechales (1621-1678), published in 1674, includes a substantial chapter on astrology with the explanation of the doctrine, only to demonstrate it as a foolish belief.⁵²⁹ By 1685, the views on astrological prognostication by Antoine Thomas (1644-1709) in his *Synopsis Mathematica* are also quite negative.⁵³⁰ In both authors the argument moves steadily from one of religious illicitness to one of the rational impossibility of astrological prognostication. Therefore, the existence of astrology lessons in Santo Antão at the beginning of the eighteenth century by Luís Gonzaga is rather unexpected as they take place in a period in which astrological practice was already being highly marginalized by academia. Although there are still some well-structured publications on astrology in this period, its appearance in an academic context, and with such a comprehensive treatment, falls completely outside the mainstream tendency.⁵³¹ Gonzaga's lessons and their academic stance will be addressed in detail further on. After that, there is possibility that Inácio Vieira could have taught astrology, but there is only certainty about his lessons on chiromancy. Subsequently, astrology disappears completely from the *Aula da Esfera*, until its end in 1759, suggesting that it fell out of favour with the scientifically minded Jesuits, as is common in this period.⁵³²

⁵²⁸ For example Guilherme Casmak mentions the Jesuit theologian Estevão Fagundes (1577-1645) and his definition of true and false astrology: *In quinque priora praecepta Decalogi* (Lyon: Laurentii Anisson et Haered. G. Boissat, 1640), 191–95 (book 1, chapter 38).

⁵²⁹ Claude-François Milliet Dechales, *Cursus Seu Mundus Mathematicus, Tomus Quartus. Complectens Musicam, Pyrotechniam, Astrolabiam, Gnomonicam, Astronomiam, Kalendarium, Astrologiam, Algebram, Indivisibilium Methodum, Aliásque* (Lyon: Anisson, 1674), 644–68.

⁵³⁰ Antoine Thomas, *Synopsis mathematica complectens varios tractatus quos huius scientiae tyronibus breviter et clare concinnavit*, vol. 2 (Douai: Michael Mairesse, 1685), 527–40.

⁵³¹ On this subject see Carolino, 'The Jesuit Paradox'.

⁵³² For a panorama on astrology in Portugal in the eighteenth century, see Luís Carolino, *Ciência, astrologia e sociedade*, pp. 317–332.

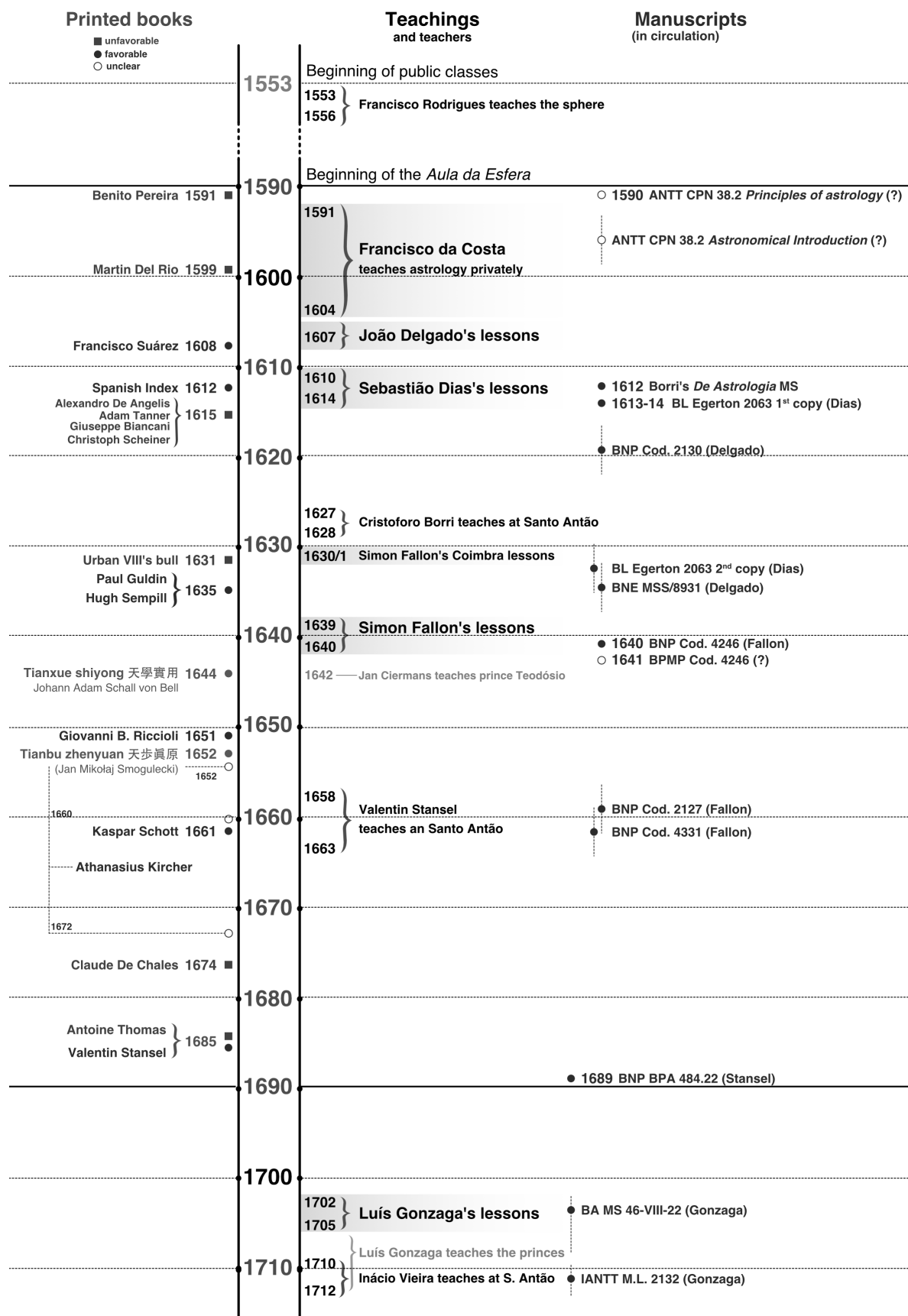


Figure 10.9 – Timeline of the astrology lessons, manuscripts, and printed books

The example of the *Aula da Esfera*

From the above examples it becomes evident that the teaching of astrology by Jesuits appears to have been a common practice in Portugal, either in their colleges, or in their tutoring duties in the court and among the nobility. The copious evidence presented emphasises how astrology was a standard element of the mathematical education for this period: from the classes in Santo Antão (either private or included in the main cosmography programme), to the classes in the college of Coimbra, as well as to those taught outside the college to Prince Teodósio by Ciermans, and to the future King João V and his brothers, by Gonzaga. Even in the apparent strictness of the Jesuit educational system there was a place for the learning and teaching of astrology. This was not a hidden practice. It was discussed in public exams, and it had an important role in the public perception of the Jesuit education. This visibility becomes even more manifest when later the connection of Jesuits and astrology was turned into a relevant *topos* of anti-Jesuit rhetoric.

Despite being by far the most explicit case of the teaching of astrology by Jesuits, the *Aula da Esfera* of Santo Antão is not the only one. Also in Spain, where the Jesuits had a similar stand to that in Portugal, astrology appears to have been included as part of the mathematical curriculum of the Colegio Imperial of Madrid.⁵³³ Another notable example is the mission in China, whose unique conditions allowed the emergence of the teaching of astrology in a Jesuit context, which played a major role on the introduction of European astrology in the Far East. This also resonates with the case of South America where the Jesuits also contributed to the dissemination and practice of astrology. With further research it is likely that more examples will appear.⁵³⁴

According to Ugo Baldini, the teaching of the *Aula da Esfera* of Santo Antão brought forth original contributions in two different areas: navigation, as its manuals introduced innovations in the field, and the teaching of the sphere which from a very early stage included

⁵³³ See Albert Dou, 'Matemáticos Españoles Jesuitas de Los Siglos 16 y 17', *Archivum Historicum Societatis Iesu* LXVI, no. 132 (1997): 309; Lanuza Navarro, 'Astrología, Ciencia y Sociedad En La España de Los Austrias', 107; Navarro Brotons, 'Tradition and Scientific Change in Early Modern Spain: The Role of the Jesuits', 332–33.

⁵³⁴ Russia also appears to be an interesting case. Still in the early eighteenth century, in a similar fashion to the *Aula da Esfera*, there are instances of combined teaching of astronomy and astrology inspired by the Jesuit curriculum. References to this influence can be found in Max J. Okenfuss, 'The Jesuit Origins of Petrine Education', in *The Eighteenth Century in Russia*, ed. John Gordon Garrard (Oxford: Clarendon Press, 1973), 106–30; Nikolaos A. Chrissidis, 'A Jesuit Aristotle in Seventeenth-Century Russia: Cosmology and the Planetary System in the Slavo-Greco-Latin Academy', in *Modernizing Muscovy: Reform and Social Change in Seventeenth-Century Russia*, ed. Jarmo Kotilaine and Marshall Poe (London: Routledge, 2004), 380–405; Robert Collis, *The Petrine Instauration: Religion, Esotericism and Science at the Court of Peter the Great, 1689-1725* (Leiden: Brill, 2012), 214–15; Ernest A. Zitser and Robert Collis, 'On the Cusp: Astrology, Politics, and Life-Writing in Early Imperial Russia', *The American Historical Review* 120, no. 5 (2015): 1619–52.

discussions on the telescope and the geocentric system.⁵³⁵ A third innovation can perhaps be added with the teaching of astrology. This can be viewed in two ways.

The first is the clear manifestation of astrological studies made by Jesuits. This is a direct consequence of the particular conditions of the *Aula da Esfera*. It was taught in Portuguese, and mainly for external students, therefore on the fringes of the stricter Latin curriculum of the *Ratio Studiorum*. Its purpose was to provide the student with technical expertise in mathematics, offering a curriculum more suitable for its practical applications, of which astrology was an important part. All these circumstances allowed the emergence of certain aspects of Jesuit academic culture that only existed in the form of private teaching or individual learning such as the case of astrology. In part two of this research it became evident that most Jesuit mathematicians had a good knowledge of astrological doctrine, even if they did not consider its practical use or were against it. Santo Antônio's particular instance made this Jesuit astrological underground education to emerge in full as part of the practical curriculum of mathematics, and in many ways in the same form in which Clavius tactfully expresses it in his *Commentarius*, both in the printed and manuscript versions

It becomes quite clear from the examples given so far that the *Aula da Esfera* is not the odd case where Jesuits working on the fringes of Europe bent the rules and crossed the boundaries of what was permissible. On the contrary, it is something much more significant. It is the most evident of several instances where Jesuit astrology was allowed to manifest and develop. Likewise, it must not be considered solely a Portuguese phenomenon. Its first teacher had a Roman education, and after him the *Aula da Esfera* had lecturers of many nationalities and backgrounds. Santo Antônio was part of the hub for the Jesuit missions in India, China, Japan, and Brazil, with an intense and continuous international exchange of people and knowledge. It was in this time far from a periphery, but rather a centre of Jesuit global activity. Therefore, the teaching of astrology in Santo Antônio is not a mere peripheral phenomenon but one emerging from the very core of Jesuit mathematical education.

The second aspect to be considered is that the teaching in Santo Antônio consolidated the transmission of a specific curriculum of astrology specially tailored for the Christian scholar of the mathematical sciences. One that attempted to seamlessly combine Christian piety and natural scholarly knowledge, thus respecting both the limits of the divine and of science. The specifics of this Jesuit astrological curriculum will now be explored in detail.

⁵³⁵ Baldini, *Saggi sulla cultura della Compagnia di Gesù (secoli XVI-XVIII)*, 158–59.

Chapter II. Teaching astrology

In face of such a long history and the abundance of testimonies on the teaching of astrology by Jesuits in Portugal, both in Lisbon and Coimbra, it becomes crucial to properly understand its presence within the Jesuit educational agenda. A detailed study of the astrology lessons will allow a comprehensive view on three main issues: first, their relationship with the other subjects taught; secondly, their positioning within the Catholic strictures on astrological practice; and finally, the nature of their training in astrology by considering the contents of the course regarding astrological doctrine, methods of prognostication, and the teaching methodology. The four different sets of astrology lessons of the *Aula da Esfera*, together with the one taught at the Jesuit college of Coimbra, encompass a period of 100 years. They are clearly not the episodic initiative of a single teacher. This century-long timeline offers the opportunity to address the placement, context and form of the astrology lessons throughout an extended period of time and in a period when the situation of astrology among the sciences suffered a profound change.

A Jesuit astrological programme?

One of the first questions that may be asked regarding the astrology lessons in Santo Antão concerns their placement within the teaching programme is: was astrology part of the overall curriculum, or an isolated topic? The evidence presented so far as to the position of these astrology lessons within the general curriculum and its sequence suggests that, at least during some periods, astrology was a standard component of the *Aula*'s teachings and not an odd exception.

João Delgado's lessons on cosmography, containing teachings on the sphere and the movements of the planets, survive in the manuscript Biblioteca Pública Municipal do Porto, Ms. 644 (hereafter, BPMP Ms. 644).⁵³⁶ These are a student's notes in which each topic is divided into parts or 'codices' noting the date of the beginning of the classes for each section. These span from 3 October 1605 to the end of 1606.⁵³⁷ Although there is no astrology *per se* in this sequence of classes, the very last section of the manuscript, codex fifteenth, deals with the

⁵³⁶ There is at least another partial copy of this texts in Biblioteca da Academia das Ciências de Lisboa, M.S.V. 491, and possibly in a manuscript current held by a private collector, see Luís Saraiva and Henrique de Sousa Leitão, eds., *The Practice of Mathematics in Portugal: Papers from the International Meeting Held at Óbidos, 16-18 November 2000* (Coimbra: Imprensa da Universidade de Coimbra, 2004), 747.

⁵³⁷ The end date of the lessons is unknown because the manuscript is incomplete. The last date recorded is 16 November 1606 on fol. 231r.

‘passions of the planets.’ This subject addresses several concepts regarding the movements of the planets such as their position regarding the Sun, their speed, retrogradations, and aspects. While the topic is astronomical in nature, its main application is in the practice of astrology. This last set of teachings began on 17 October 1606 and lasted until the end of the year. They immediately precede the astrology lessons (the above mentioned *Astrologia pratica*) that took place from 8 January to 31 July 1607, according to BNE MSS/8931. The sequence is confirmed in two instances: the first, in the text on the sphere when Delgado debates the validity of astrology as a science (BPMP Ms. 644, fols. 48v-50v) and states that it is important to know:

if practical astrology is a proper, honourable, and useful science, fit for a good Christian man, before we begin to deal with it, once the [lessons on the] theories [of the planets] are completed.⁵³⁸

The second is in the opening chapter of *Astrologia pratica*, which states that astrology will be addressed after the explanation of ‘the theories and passions of the planets which result from their movements’. This shows without any doubt that the two sets of lessons are part of the same course and that practical or judiciary astrology was the final topic in Delgado’s cosmography and astronomy programme since it concerned the practical application of the concepts and calculations previously taught.

A similar structure is found in the Egerton texts which contain a complex programme of cosmography, addressing various key mathematical disciplines, which seamlessly includes judicial astrology. As mentioned before, the treatise of astrology in four parts, together with the compendium of cosmography, and the treatises on the sphere, on hydrography and navigation, and on geography, are part of the same unit of lessons. The author, Sebastião Dias, structures its cosmography course in six parts or matters: the sphere, theory of the planets, geography, hydrography and navigation, horology, and judicial astrology. Despite the initial statement that he will only teach astrology if there is time, he mentions it in several instances as an unquestionable element in the course. The entire set is structured as a large compendium on mathematics and cosmography; only the lessons on theory of the planets and horology are missing, as well as parts two and four of the astrological lessons. As with Delgado’s programme, astrology appears at the end of this sequence, as a practical application of the other astronomical disciplines.

⁵³⁸ ... se Astrologia pratica he sciencia certa, honrosa, proueitosa e digna de hum homem bom Christão, pera quando della começarmos a tractar acabadas as theoricas (BPMP Ms. 644, fol. 48v).

In Simon Fallon's texts, astrology also follows the astronomical lessons as one of its main practical applications. This is more explicit in his lessons from Coimbra, where Fallon poetically states that astrology will be the practical application of the astronomy he had taught, and the astrology lessons are presented as the natural sequence to astronomical matters. The same is not stated in the classes of Santo Antão, but the structure is similar. In this case the astrology lessons, which took place between 1639 and 1640, are sequential to another set of lessons on the sphere and astronomy, titled 'speculative compendium of the artificial, sublunary and celestial spheres' (*Compendio spiculativo das sphaeras artificial, soblunar e celeste*) from the previous year (1638 to 1639).⁵³⁹

Even Gonzaga's astrological lessons, which appear in a later context are, as the above, part of a larger set of teachings on the sphere (*Esphera Astronomica Composta e dividida em Circulos*) taught between 15 September 1700 and 25 May 1701.⁵⁴⁰ The astrology lessons took place afterwards on 22 February 1702, until February 1705, in the last section of the course. To these can be added a third extensive work on military architecture (*Exame Militar*), whose date of teaching is unclear, but probably took place before 1706 when Gonzaga became the tutor of the princes.⁵⁴¹

All four teachers consistently place the astrology lessons within the structure of the larger astronomical and cosmography programme. This excludes the possibility of these astrology lessons being just episodic events, or even private courses. On the contrary, they are presented as an essential part of the main curriculum. This was certainly a public fact as the later anti-Jesuit texts reveal.

It is however known that private courses on astrology existed, at least in the early years of the *Aula da Esfera* by the hand of Francisco da Costa. These appear to have occurred in a time where there was less acceptance of astrology and in the decade following Sixtus' bull. Yet, this research has not found any other direct references to private teaching of astrology in the *Aula*'s timeline after Delgado's course of 1605-1607. There is the case of the lessons by Simon Fallon in Coimbra, but these were only lectured inside the college so that they would not clash

⁵³⁹ Copies of these lessons can be found in Biblioteca Nacional de Portugal, Cod. 2258, and Cod. 2125.

⁵⁴⁰ Biblioteca da Ajuda, Ms. 46-VIII-21. Another copy of this text can be found in Biblioteca Geral da Universidade de Coimbra, MS. 182.

⁵⁴¹ Biblioteca da Ajuda, Ms. 46-VIII-23. A note in the initial folio states that these lessons were ordered by king Pedro II to be taught in Santo Antão and later to his three sons. On the teaching of military architecture by Gonzaga and other Jesuits see Lucca, *Jesuits and Fortifications*, 121–32.

with the mathematical teachings in the neighbouring University of Coimbra. Besides, they were part of a larger programme of astronomy and mathematics, as those from Santo Antão. Also, the astrology lesson given to princes at court could be considered as ‘private’, but their existence appears to have been quite public as is shown by the case of Prince Teodósio. Even the additional manuscripts, suggested to be of Jesuit origin, show clear evidence of being part of a larger programme. Indeed, among the manuscripts accepted to be of Santo Antão there are no texts demonstrating the existence of private lessons. Of all the texts uncovered in this research only those from the archive of Francisco de Melo e Torres might fit in this category. If these texts are confirmed to be of Santo Antão they are representative of the teaching of astrology at the time when it was not yet included in the main curriculum. But even they appear to have been preceded by lessons on the sphere, as is clearly stated in *Principios de Astrologia*. Given their early date, one of these small treatises could be one of the texts authored by Francisco da Costa and mentioned by Manuel de Figueiredo. However, these are at this point only suppositions and considering all the existing pieces of evidence, private lessons would be the exception and not the rule. This is further attested by the fact that the vast majority of surviving Jesuit astrological texts are those that were part of the central curriculum on cosmography. All hard facts, from the curricula themselves, the public nature of the final exams, to the accusations of the anti-Jesuit propaganda, are indicative that the teaching of astrology in the programme of the *Aula da Esfera* was a public fact.⁵⁴²

All of these mathematical and cosmography programmes from Santo Antão and Coimbra follow the same general structure as the astrological sections of the Jesuit printed books on mathematics addressed in Part Two. That is, a section on astronomy and the sphere where the theoretical foundation of celestial structure and motion are explained, followed by a treatise on astrology where is presented the doctrine of the interpretation of the celestial movements. This model can be found in Hugh Sempill’s *De Mathematicis disciplinis Libri duodecim*, printed more than two decades after Delgado’s and Dias’s lessons, and in Kaspar Schott’s *Cursus Mathematicus*, which appears two decades after Fallon’s course. It is possible that this concept

⁵⁴² This clearly contradicts Ugo Baldini’s assertion that these lessons would have most likely been private. He basis this conclusion mainly on the papal prohibitions on judicial astrology which would not have allowed its teaching by the Jesuits. However, as discussed in Chapter 2, these distinctions between licit and illicit astrology are much more complex. It is clear that in the context of Santo Antão, similarly to other scientific settings, judicial astrology did not imply illicit astrology, but the practical application of astronomy to forecast based on natural phenomena. The other reason Baldini advances is that astrology always appears separated from the astronomy in the manuscripts of Santo Antão. Yet, this research has shown that a closer look at the content of manuscripts denotes that they were intended as part of the same programme and not separate extracurricular subjects. For Baldini’s arguments see Baldini, ‘The Teaching of Mathematics in the Jesuit Colleges of Portugal from 1640 to Pombal’, 333–34.

of programme emerged from a single, unidentified source, perhaps even Clavius himself, who speaks in terms of theoretical and practical astronomy. Alternatively, this uniformity could simply be reflecting the manner by which the teaching of astrology was propagated within the Society by Jesuit scholars in general. The astrological lessons of the *Aula da Esfera* appear to be the most noticeable and complete manifestations of this model.

Defending astrology

Before going into the details of the astrological doctrine being taught by the courses of the *Aula da Esfera*, two things must be addressed: their purpose and validation through the minds of their authors. This is a very important point as it counters the general idea that a Jesuit would be against astrological practice. In all instances, after a brief initial statement, the four authors move on to ascertain astrology's validity both as a science and as a licit practice for a Christian. This is an important part of their introductory text, as they had to assure the reader that what they were teaching was proper scientific knowledge; it was neither the popular uneducated version of astrology nor the practices condemned by the Church.

João Delgado presents perhaps the most interesting and comprehensive example of a defence of astrology. He discusses the validity and lawfulness of astrology in two separate instances of his cosmography programme. The first is in the introduction of the text on the sphere after a long discourse demonstrating the validity of mathematics as a science (see Appendix IV for an edition of this text). The mathematical portion of the text has been discussed in several instances, but the part on astrology has been ignored altogether.⁵⁴³ In it, he puts forward the question: 'If astrology has the first degree of dignity among the human sciences.' Delgado first clarifies that he will not make a distinction between the term 'astronomy' and 'astrology', preferring to use, respectively, the terminology of 'speculative' and 'practical.' However, he does clarify that at this point he speaks on the worthiness of practical astrology which he will address after the speculative. Then, he begins a long discussion on the means to evaluate the dignity and excellence of any science according to Aristotle: the nobility of its subject or matter, and the certainty and solidity of its methods of demonstration. Delgado concludes that astrology exceeds in both accounts all other human sciences, therefore being the

⁵⁴³ For a discussion of Delgado's defence of mathematics, see: Luís Miguel Carolino, 'João Delgado SJ e a «Quaestio de Certitudine Mathematicarum» em inícios do século XVII', *Revista Brasileira de História da Matemática* 6, no. 11 (2006): 17–49; Bernardo M. Mota, 'O estatuto da matemática em Portugal nos séculos XVI e XVIII' (Lisboa, Universidade de Lisboa, 2008), 209–20, <http://repositorio.ul.pt/handle/10451/530>.

most noble. This is so because its subject, the heavens, is incorruptible and unchangeable, and the universal cause of all inferior and natural things. Thus, astrology supersedes natural science since the latter considers the corruptible bodies, as well as the sciences of geometry and arithmetic whose subject, quantity, is accidental and separated from sensitive matter. As to demonstrations, Delgado argues that it exceeds physics as they are based in arithmetic and geometry which, according to Averroes, Aristotle, Ptolemy, and all other philosophers and astrologers, have the first degree of certainty. He then states that astrology is a difficult science to grasp, being called by Scotus ‘a science of angels’.⁵⁴⁴ Taking the opportunity to mock astrology’s critics he mentions that ‘those who do not understand a any of it are as the bat, which not being able to see the Sun due to the weakness of its eyes, makes sure that no one else can’, and that Albumasar in the first differentia of his *Introduction*, says that feeling ill towards astrology is a sign of the inability to understand it.⁵⁴⁵

He finishes his dissertation by refuting four other arguments challenging the superiority of astrology. The first is that natural philosophy also considers God as the first mover of the heavens. Delgado believes this to be an exceedingly universal consideration, being astrology far superior in subject since it considers the very properties of the heaven’s motion. The second argument is that if speculative science is far nobler than the practical, natural philosophy is nobler than astrology since it is entirely theoretical. Here Delgado replies that, though in this regard it is true that natural philosophy is higher, astrology wins not only as to 1) subject and procedure which reach a greater multitude of causes, but also because 2) the things that it teaches are more occult and less known, 3) it is much more difficult to learn, 4) its method of learning is much closer to the perfections of sciences, and 5) it is more beneficial and useful. The third argument is that since astrology presupposes the knowledge of natural philosophy, ‘as Ptolemy mentions in the *Quadripartitum*’, it would be lower than it. Delgado considers that this is not necessarily so, since natural philosophy is not higher than sacred theology which also assumes it. The fourth and final point is that, since the substance is nobler than the accidents, and natural philosophy discusses the substance of the heavens, it would be nobler than astrology

⁵⁴⁴ Most likely John Duns Scotus (c.1265-1308).

⁵⁴⁵ ... he verdade que a Astrologia he muito difficultosa de alcansar, e por isso lhe chamou Escoto sciencia de Anjo: e assim os que não podem entender nada della são como o morçego, que por não poder ver o Sol com a fraquesa de seus olhos, cuida que o não pode uer ninguém: Albazar no seu interductorio differença primeira diz que sentem mal Astrologia, he sinal que lhes falta o sentido de iuizo pera ella ... (BPMP Ms. 644, fol. 49v) – ...it is true that astrology is much difficult to grasp, and because of this Scotus called it science of angels. Thus, those who cannot understand it are like a bat: because they cannot see the Sun due to the weakness of its eyes, make so that no one else can see it. Albumasar in its introduction, first difference, states of those that feeling bad towards astrology that is a sign that that they lack intelligence for it.

which only considers its accidents. Delgado replies that what natural philosophy has to say regarding the substance of the heavens is not science but rather opinion or doubt. Astrology, on the contrary, has its own method of knowing the substances through the effects they cause, as in the case of the planets and fixed stars; this method eludes any error in the determination of the substances, and according to Aristotle things which are more occult and remote from the senses are more sure.

This first defence of astrology follows quite well Delgado's complex and ingenious defence of mathematics. It is more philosophical in nature since it focuses on the validity and positioning of astrology in regard to natural philosophy, a discussion that Delgado knew well from being a disciple of Clavius, who defended mathematics in similar terms.

Delgado's second defence of astrology appears in the introduction to the final section of his larger cosmology course: the proem of *Astrologia practica*. It has a different purpose than the first since it centres on the practical applications of astrology. Here, the validity of astrology is discussed in two questions: 'Is it possible to know something naturally and scientifically through astrology?' and 'Is the knowledge of astrology licit?'

Delgado debates the first question by addressing the positioning of astrology within the Aristotelian concept of science and presents two of the main and most common arguments against astrology. The first argument is the impossibility of knowing the sufficient or total causes of the effects studied by astrology, and thus to know anything truly natural by means of astrology. Even if such knowledge were possible, the myriad of combination of such influences would make it impossible for the human mind to know. The second argument is that the method of knowledge used in astrology is experience. However, the astrologers disagree in many things, ranging from certain fundamental parts of astrological doctrine to the judgements of celestial configurations. Thus, astrology is not an exact or certain knowledge.

Regarding the first argument Delgado reminds the reader that it is possible to know many things by means of astrology, which can be proven, not only by the authority of all good philosophers and astrologers, but also through the following argument:

As the external vision has a connection with its object, so human understanding, which is the inner vision, has it with its own [object]. In the object of the external vision are included all things naturally visible; therefore in the object of the understanding are [included] all things naturally intelligible – and consequently the heavens with all its essences, natural influences and properties, which are natural beings and thus naturally intelligible. And for this reason, Aristotle in the third book on the soul, states that human understanding, even though inferior in respect to all understandings, wins in nobility over

all corporeal substances because it is able to understand them all. For this reason, it is necessary for it to be of a spiritual nature, free from body and corporeal organs, in the same manner that it is necessary for the pupil of the eye pupil to be free from all colour to be able to judge all colours.⁵⁴⁶

Since the human intellect is able to understand the heavens and its effects, Delgado recalls that the precise movements of the heavens are much more difficult to get to know than the effects of such heavens and planets. Thus, when the first is known, the second is much easier to understand, which is proved by the fact that rustic men from the countryside and sailors without any learning know some of these influences; or as Ptolemy states, even animals recognize these effects. Furthermore, if such knowledge, with all its periods, aspects, conjunctions and oppositions, was not made evident by the wise and the astrologers, it would not exist as it would be considered impossible. However, even if practical astrology is easier than its speculative counterpart, it is still a very difficult discipline, from which he ironically concludes:

And it might be for this reason that in this day and age, with gracious disdain, the masters of the philosophical courses shake it off from their obligations. Despite it being, as much in the substance of its object, as in the manner of demonstration, as natural as the other parts of philosophy – it is rather the peak of said philosophy. But as the wise man said, not everyone can go to Corinth.⁵⁴⁷

Delgado then resumes the issue of the validity of astrology being reliant on the knowledge of the exact causes of the natural effects. He makes a straightforward and practical consideration which largely resolves the matter, refuting the common anti-astrological argument that astrologers do not take into account every star in the sky:

However, while they [i.e. the effects] depend on the superior causes, it is sufficient to have a general knowledge, as Ptolemy states, advising every astrologer not to risk error in judging by universal causes without adding the knowledge of the inferior particular causes that necessarily concur to such effects, because all together are sufficient or total causes, and not by themselves. And as to the knowledge of the superior causes, it suffices to know the virtues of the twelve signs of the zodiac, of the seven planets, and some fixed stars of greater magnitudes, whose influences are primary even that commonly they have

⁵⁴⁶ Como a vista exterior se há com o seu objecto asi o entendimento humano que he vista interior com o seu. No objecto da vista exterior comprehende todas as cousas naturalmente visiveis, logo no objecto do entendimento todas as naturalmente intelligiveis e por conseguinte is Cozas com suas essencias, naturaes influencias e propriedades que são seres naturaes e por tanto naturalmente entendiveis. E por esta causa quer aristotiles no terceiro da alma que o entendimento humano ainda que inferior de todos os entendimentos vensa em nobreza todas as sustanças corporais as porque pode entendelas todas pera o qual he necessário que seja espirital de sua natureza yzento de corpo e de órgão corpóreo como he tão bem necessário que seja a pópila dos olhos yzenta de toda a cor pera poder julgar de todas as cores (Delgado, 1st doubt).

⁵⁴⁷ E ja pode ser que por esta caussa com hum desdém gracioso a sacodem tanto de sua obrigação neste tempo os mestres dos cursos philosophicos. sendo ella asi na sustança do objecto como no modo de demonstrar tão natural como as demais partes da philosophia. antes ocumme da mesma filosofia mas como disse o sabio nen todos podem hir a Corinthio (Delgado, 1st doubt).

contributions of other stars of less efficacy that do not change them essentially, but only a little and accidentally.⁵⁴⁸

In the second argument, concerning the disagreement between the astrologers, Delgado is more succinct. He argues that, if one is to seek in all kinds of sciences and arts, one will find many that profess them having many discordant points of view. The higher the science, the greater its difficulty and thus the greater is the discord. If this does not make the other sciences lose their truthfulness, neither does it do this to astrology, and ‘in many excellent astrologers it is almost always, or for the most part, found to be true.’⁵⁴⁹ Furthermore, the error is a problem of the practitioner’s knowledge and not of the discipline. He then subtly turns the argument towards astrology’s greater critics, the theologians and the philosophers:

And the fact that the authors do not always agree in the sciences comes from the weakness of our understanding of their knowledge, as with the light in the eyes of the bat. In sacred theology there are many diverse opinions, many more in philosophy, as well as in the other [sciences].⁵⁵⁰

He finishes his argumentation by returning to the main and most reputed source of astrological knowledge, Ptolemy, and takes the opportunity to rebut yet another crucial point, the flagship of the criticism regarding the technical disagreement among astrologers – the calculation of the celestial houses:

And Ptolemy, or Hermes, in the first sentence of the *Centiloquium* wants the knowledge of practical astrology to be not always in truth infallible, but as with the other parts of philosophy, halfway between the necessary and the contingent or possible; and this by reason of the inconstancy of the inferior matter in which the heavens exercise their operation, which easily changes from one quality and temperament into other and does not preserve the same disposition. And with all this I add that the good astrologers for the most part agree among themselves in that which is essential, even if they proceed by different ways as by three different manners of erecting the celestial houses, as much as two different clocks having different cogs both in quality and in number, turn out to essentially agree by showing both the same time.⁵⁵¹

⁵⁴⁸ Porem enquanto elles dependem das causas superiores basta saberense em geral como diz ptholemeo aconselhando a todo o astrologo que não se ponha a risco de errar julgando por causas universaes sem lhes ajuntar o conhecimento das causas inferiores particulares que nesariamente concorrem pera os taes efeitos por que todas juntas e não quaes quer per si são caussas sufficeientes ou totaes. E quanto ao conhecimento das superiores basta saber as vertudes dos doze signos do Zodiaco, dos sete planetas alguans estrellas fixas das mayores granduras cujas inffluências são as prencipaes ainda que de ordinário concorrão outras estrellas de menor efficaça que as não alterão no essencial se não em pouco e açidentalmente (Delgado, 1st doubt).

⁵⁴⁹ asi não perde a sua verdade a astrologia achando ser em *muitos* exelentes astrologos quasi sempre ou pela mayor parte verdadeira (Delgado, 1st doubt).

⁵⁵⁰ E o não concordarem sempre os autores nas sciencias nase na fraquesa do nosso entendimento que se ha no conhecimento dellas como com a luz os olhos do morçego. na Sagrada Theologia ha *muitas* openioes diversas, muitissimas na philosophia e asi nas mais (Delgado, 1st doubt).

⁵⁵¹ E ptholemeu, ou hermeth na primeira palavra do centiloquio quer que o conhecimento da astrologia practica não seja sempre de verdade infaliuel senão como nas demais partes da philosophia meão entre o nesessario e contingente, ou posiucl, e isso por Resão da inconstancia da matéria inferior na qual exsercitão os ceos sua operação que facilmente se muda de

In the case of the second question, ‘Is the knowledge of astrology is licit?’, once more Delgado begins by presenting the two main arguments against astrology: that many doctors of the church, holy councils and popes ‘condemn, abominate and forbidden’ astrology with severe penalties; and the fact that it is arrogant and a kind of impiety for humans to want to know future things, which is something that belongs to divine science. In view of such arguments, Delgado states, astrology does not appear to be a licit thing, neither in its knowledge nor in its practice. However, that is not his opinion, and grounding his arguments on noteworthy sources he states:

I reply that the knowledge of true natural astrology, in the same manner as that of the other natural and true sciences, always is and always was licit. This proposition is proven by what was ingeniously written by Lucio Bellanti, Pedro Ciruelo, Gabriele Pirovano, in their scholarly defence against the contrary sophistications of Pico de La Mirandola and of any others who, imitating him, without any discrimination and with closed eyes, condemned all of astrology; also, Julius Firmicus Maternus in his first book, Valentin Naibod, John of Saxony on Alcabitius, Francesco Giuntini, Albert Pigghe, Jean de Gerson, Chancellor [of the University] of Paris, and six hundred other Catholic men of our time, as [well as] many of the ancient Arabs; and above all Ptolemy in the first three chapters of his first book; to whom we can add Albumasar in chapter four of the first introductory book, beautifully arguing against ten diverse sects of evil, ignorant, and covetous men that in his time, with various calumnies, persecuted the true astrology.⁵⁵²

Thus, Delgado underlines that natural and true astrology, because it studies the natural and true causes of the heavens and celestial bodies in the World, is undeniable and can only be rejected by the blind and insensitive. It is a true and licit and dignified science from which any Catholic of good understanding can enjoy and profit from, as it is most subtle and most delightful. Of course, Delgado notes that, when it comes to practical astrology ‘it is necessary to separate the gold from the faeces’,⁵⁵³ and that many earlier authorities noted that human greed has adulterated the pure precious metals with others of lesser worth and tainted medicines with things of no value, and astrology was also stained by similar mixtures. Thus, following the

huma qualidade e de hua temperie em outra nen preseuerão muito em huma mesma despousição. e com tudo isto ajunto que os bons astrologos no essencial pela major parte comcordão entre si ainda que prosedão por deuersas uias como por tres diferentes modos de aleuantar as casas celestes. asi uemos que dous Relogios de diversas rodas em qualidade e numero vem a Responder com o essencial de mostrar as oras ambos a huma (Delgado, 1st doubt).

⁵⁵² Respondo o saber da verdadeira natural astrologia como das demais sciencias naturaes e verdadeiras sempre he, e sempre foi licito. esta proposição se proua com o que en sua defenção docta e engenhossamente escreuerão Luçio Belancio, Pedro Çiruelo, Gabriel Pirouão, contra as suffistecarias en contrario de Pico Mirandula he de quaes quer outros que a sua Imitação sem nenhum selecto a olhos serrados condenão toda a astrologia. Item julio firmico materno no asey primeiro liuro, valentin nabot; e joão de saxonia sobre alquabicio, francisco juntino, alberto pinho, jersão canselario de paris, e seis sentos outros varões católicos de nossos tempos com muitos de Arabia antigos e sobre todos ptholemeu, nos três primeiros capitulos do primeiro liuro aquem podemos ajuntar albumazar no capitulo 4º do primeiro liuro introductorio, argumentando belisimamente contra dez seitas diuersas de homens maleuolos jgnorantes e cobisosos que com varias calumnias perseguirão em seu tempo a verdadeira astrologia (Delgado, 2nd doubt).

⁵⁵³ ... quando se fala de astrologia practica he necesario saber apartar o ouro das fezes ... (Delgado, 2nd doubt).

customary apologetic discourse, he reminds the reader that many include in astrology vain arts, divination and superstitions that are condemned by the Church and sacred texts. Delgado thus concludes that what is forbidden and unlawful is not the true astrology but those arts that falsely take the name of astrology, or more generally, the name of mathematics, and are mere vanities or inventions of the demon to deceive men.

Just before this general conclusion Delgado dedicates a large part of his argumentation to advise the student on how to practice astrology in a manner that is lawful and that keeps him safe from suspicion and slander. This is quite an important section, since it presents a rare example of a teacher of astrology advising the future astrologer on ethical conduct and good practices in the context of a class. In Delgado's view the practitioner has to be, above all, modest and prudent in his use of astrology. This will save him from the attacks and insults of other men and keep him from problems with the law and the Church. Modesty comes into play as he should not show knowledge that he does not have or has not fully understood. Prudence is needed when there is the possibility of error due to an unknown factor, even if the judgement was diligently and correctly executed. He also suggests tactfulness, as there should not be any presumptuous or careless attitude in the manner the astrologer states things, so as not to offend any laws or customs, even if he considers these things to be true. He also cautions against certain books and authors that can introduce superstitious matters in the student's learning and lead him astray from true astrology. Finally, he advises the knowledge of the limits of lawful practice by knowing the rules of Sixtus' bull:

And as a first conclusion of this discourse, we must warn every student of astrology and good Christian that, to avoid similar insults of men who are malevolent and easily seek vituperation, he should use his astrology modestly and prudently. And therefore, he will use it modestly when he does not want to show off knowledge that he has not grasped perfectly – not attributing to astrological science things that in truth it cannot reach, such as knowledge of future spiritual actions, miracles, and those things that depend on free will or are merely fortuitous and casual. Because those who want to be astrologers in these matters are more properly diviners and as such deserve to be punished.

He will use it prudently, if after all possible diligence is made to be correct, he nonetheless knows for himself that there can be some error in the judgement by reason of some cause that was not considered. And this prudence will not be particular to him because in all judgements of the other sciences, in their own manner, it is necessary; this however, [must be] without disconcertion that may cause him to error further. Besides this, if he is neither presumptuous nor inattentive, [by not] stating things that contradict the divine and human laws, [as well as] virtue, religion, and the common decency of those among whom he lives – even if they seem to him to be true things. And I add if he is not too fond of the lessons of the books of those ancient Arabs, idolaters and superstitious, and enemies or ignorant of our holy faith, who wrote thousands of meaningless things. And for even more security, it is necessary to know that pope Sixtus V in a bull that begins 'Of heaven and earth' permits no practice or lessons of judiciary, except that which

belongs to agriculture, medicine and navigation, although outside these three subjects there are others not bad by nature in which can be made astronomical judgements. However, due to the unrest that they cause in the souls of the Christian faithful – such as when they establish the end of life, or the times when disastrous events that will happen – the holy father wants that those who do this, suffer the same penalties and censorship of those which deal with vain and superstitious judicial astrology.⁵⁵⁴

In sum, he teaches his students to use only what they know, to consider that in any judgement error may occur, to state things carefully and considerately, to be cautious with sources, and to know the laws and restrictions to astrological practice. This is an important element of ethics that permeates the Jesuit practice of astrology and will also be observed in the presentation of astrological doctrine and the techniques of judgement which will be addressed further on. It is also important to note that Delgado recognizes that there are other types of astrological judgement that are not necessarily evil or superstitious, but as the information attained through them might cause unrest, they are forbidden by the bull. Although he does not fully name them, he is aware of their existence, revealing that his knowledge of astrology is clearly not limited to the permitted areas.

As to the second argument, regarding the lawfulness of the knowledge of the future, Delgado is more succinct. He states that the means by which good and natural astrologers attain knowledge of future things is neither arrogant nor impious. While God has by His divine nature the exact knowledge of all things past, present and future, the astrologers meander around tracing the mere natural effects and futures within the power of their causes. This knowledge compared to that of God is but a grain of sand to the whole globe of the Earth. The astrologer prognosticates by means of his acquired science which is not infallible. Furthermore, the judgements of the astrologers are ‘not divine oracles but conjectures of a learned man and

⁵⁵⁴ E primeira conclusão deste discurso aduirtamos a todo o estudioso astrologo e bom cristão que pera euitar sesmelhantes afrontas de homens malevalos e facilmente vetuperadores deue usar modesta e prudentemente da sua astrologia. E então usara modestamente quando não quiser mostrar de saber se não o que tem perfeitamete alcançado e não attribuindo á sciencia astrológica coisas a que ella na verdade não pode chegar como ao conhecimento de futuras esperituaes, milagrosos, e que dependem do liure aluedrio ou são meramente fortuitos e casuaes porque os que nestes querem ser astrologos são propriamente adeuinhadores e como taes merecem serem castigados. Uzara prudentemente se dipois de ter feita tida a deligência posiucl pera asertar todauia tiuer pera si que pode auer no juizo algum erro por rrezão de alguma causa que deixou de considerar. E esta prudência não será a elle particular porque em todos os juízos das outras sciencias a seu modo he nesecaria porem sem perturbação que lhe cuase mais errar. alem disto se não for presuntuosos e desatentado afirmando cousas que contradigão as leis diuinas e humanas a vertude, arrelegrão, aos bons costumes daquelles entre os quaes vive ainda que lhe paresão verdades e aiunto, se não for dado demasiadamente a licaos de liuros daquelles arabes antigos jdoltras supersticiosos, e enemigos, ou jgnorantes da nossa santa ffee que escreverão Melhares de sansaborias e pera mais seguranca he nessesario saber que sisto quinto pontifice máximo em huam bulla que comesa; do Çeo e da terra, não permite nenhum exercisio nem lição da judiciaria senão daque pertencer a agricultura medecina e nauegação e ainda que fora destes tres sujeitos aja outros de sua natureza não maos nos quaes se posão fazer juizos astronomicos todauia por a inquietação que causão nas almas dos fieis cristãos como quando apontão o termino da vida, ou tempo de casos dezastrados que ande acontecer quer o padre santo que os que isto fizeram incorrão nas mesmas penas e sensuras em que encorrem os que tratão da judiciaria vã e supresticiosa (Delgado, 2nd doubt).

sagacious ingenuity, with an assumed human weakness and that can many times be mistaken’, and also ‘the name of judicial or conjectural astrology does not mean science of infallible truth’. Delgado’s arguments effort to place astrology in its proper setting as a limited human knowledge which is obtained by means of natural conjectures. However, he finishes his argument with a common observation in the defence of astrology which concerns the reception of astrology by society in general. He points out that for reasons unknown to him an error in astrology is much more damaging than in any of the other sciences. Inversely, Delgado considers that an error in astrology is much less harmful than that of a theologian, for it may cause the loss of souls, that of a physician, from which a life can be lost, or that of a navigator, who can cause the loss of life and property. However, when the theologian, the physician and the navigator make mistakes no one blames theology, nor medicine, nor the art of navigation. Astrology on the other hand is always blamed by the errors of ignorant astrologers.

As far as this research has been able to uncover, Delgado’s text appears to be the earliest known purely astrological text by a Jesuit author and, consequently, the first known example of a defence of astrology written by a Jesuit, in the context of an astrological text.⁵⁵⁵ As stated before, there are various anti-astrology texts by Jesuits, but the only known pro-astrology texts, outside the theological discussions, and most importantly in the context of astrology itself, exist only in manuscript form in these astrological treatises. Delgado’s defence echoes and is likely based in other much larger and complex texts produced in the wake of Pico’s *Disputationes*; this is clear by the authors he lists. Nonetheless, Delgado’s argumentation summarises quite well the fundamental arguments. It must be recalled that Delgado received his mathematical, and astrological education in Rome between 1580 and 1585. He was there when the discussions surround the bull of Sixtus V were taking place, and so at the very epicentre of the anti-astrology debates. He was studying mathematics at a time when its status as a science, its validity and teaching was under attack by Benito Pereira and other Jesuit philosophers. All this is quite noticeable in his apologetic section of the astrological lessons and in the discussion of the dignity of astrology as a science in the astronomical lessons. Because he was educated in an environment hostile to both astrology and mathematics, he is quite precise in his defence of astrology. He addresses not only the philosophical questions and the main theoretical issues, but also the corresponding parts of the doctrine that are used to exemplify them, applying them

⁵⁵⁵ Delgado’s text is so far the earliest example of an apology for astrology by a Jesuit. Even if the texts in CPN 38.2, *Introdução Astronômica* and *Princípios de Astrologia*, prove to be early astrology classes of the *Aula da Esfera* (as they appear to be) these do not offer any kind of apologia or an initial statement of intentions (Delgado, 2nd doubt).

as examples to counteract and dismiss the critique, such as the case of the calculation of the celestial houses. He is also very blunt to turn the critique towards its source, the philosophers and theologians, making several witty remarks. Though he never mentions him by name, it is apparent that Benito Pereira is among those that in imitation of Pico ‘without any discrimination and with closed eyes, condemned all of astrology’. Being well versed in counteracting the critiques of astrology he directly advises the future practitioner on the dangers of a bad practice of astrology, transmitting in his text a complete guide of conduct and ethics for the learned Christian astrologer.

Delgado’s successor in the *Aula da Esfera*, Sebastião Dias, begins his treatise from a slightly different perspective, although with very similar arguments. Oddly he does not quote any of the customary defences of astrology or indeed any astrologer other than Ptolemy. Dias starts by emphasising the distinction between a true astrology, which he will teach, and a false astrology used only by those ‘ignorant and without science or conscience’. His argumentation is very succinct and practical, being structured around three topics or chapters: ‘What manner of thing is astrology and how it differs from astronomy’, ‘If anything can be known through astrology’ and ‘If it is licit to erect a figure, and for which things it is licit to erect one, and for which things it is not’. In sum, he reduces his defence to three main questions: what astrology is, its validity as a science, and the lawfulness of its practice. As to the first question he answers it straightforwardly:

Astrology is nothing else than a science that, by means of rules and precepts founded on natural reason and the certain and evident principles of astronomy, as well as by experience, teaches to judge and prognosticate (conjecturally) only the natural effects dependent on the superior and celestial causes, that occur in this sublunary world. From this, one understands the difference that exists between astrology and astronomy: because to astronomy belongs the speculative treatment of the heavens, the stars and planets, based on certain demonstrations of arithmetic and geometry. The object of this science [i.e. astrology] is the celestial bodies that influence the elements and mixed substances of this inferior world. And the main parts of this object are the planets, stars, and parts of heaven, both mutable and immutable, which in this section we will address.⁵⁵⁶

⁵⁵⁶ A Astrologia não he outra cousa que huma sciencia, a qual por meio de regras, e preceitos fundados em rezam natural e princípios certos e evidentes de astronomia, e juntamente com experiência ensina a julgar e pronosticar (conjecturalmente) de effeitos meramente naturais e dependentes das causas superiores e celestes, os quais neste mundo sublunar acontecem. Donde se colhe a differença que há entre a astrologia, e astronomia: porque à astronomia pertense tratar especulativamente dos ceos, das estrellas e planetas fundando-se em demonstrações certas de Arithmetica, e Geometria. O sojeito desta sciencia são os corpos celestes que influem nos elementos, e mixtos deste mundo inferior. E as principais partes deste objecto são os planetas, estrellas, e partes do ceo assi mutáveis como immutaveis; das quais só nesta matéria avemos de tratar (Dias, tr.1, ch.1).

Concerning the validity of astrology as a science he is also very direct in his argumentation. Leaving aside the ‘arguments and hundred reasons of those envious and enemies of knowledge’ he proposes to discuss only three, presenting the same arguments as Delgado. First, he declares that through astrology many things can be naturally known, as the philosophers and astrologers state.⁵⁵⁷ This is true because: 1) as the sense of sight naturally extends to its object, which is all visible things, so does understanding extends to all intelligible things, astrology being one of them. 2) if the most complex parts of a given object can be understood, so can the simple ones. Therefore, if the complexity of the movements of the celestial bodies with their orbs and epicycles, which are extremely difficult to apprehend, can be understood, so can their effects upon the sublunary world. 3) if animals can understand, denounce and prognosticate such effects, then humans can do it even more.

Dias’s second point regards the errors for which the astrologers are commonly faulted. He considers them to occur for two main reasons: either the astrologers recklessly attempt to make judgements on illicit things and those that are outside the scope of astrology, or they do not have the required knowledge of the discipline or the experience, judging things hastily and coarsely without the necessary attention and care. The third, which is the censure of astrology by popes, saints and the sacred texts, Dias, like Delgado considers that they are made against the superstitious astrologers that ‘speak of things that exceed human capacity’, and not against the ‘good astrologers, restrained in judging, and experts in judgement’.

Finally, in the third chapter he deals with the final question: whether astrology is a licit practice. Here, relying on the opinion of Thomas Aquinas, he states that to make astrological judgements of natural things and changes of the air is neither bad nor forbidden, as these are dependent on the celestial influences, and the power and aspects of the planets and other celestial bodies. He further notes that this is licit under the bull of Sixtus V as these effects come from natural causes. Dias highlights that despite not being illicit, the practice of astrology is ‘difficult to be certain and it assumes a good knowledge of philosophy for its good practice,

⁵⁵⁷ Deixando argumentos e cem rezões de envejados, e inimigos da sabedoria contra a astrologia costumão fazer, somente propore 3 dos que nesta matéria podem fazer mais pella parte negativa: mas primeiro que os vejamos ponhamos a parte verdadeira. E assi dizemos, e rezoluemos com todos os philosophos e astrólogos que mui bem se podem saber naturalmente muitas cousas por meo de astrologia (Dias, tr.1, ch.2). Translation: Putting aside the arguments and one-hundred reasons of envious [men] and enemies of knowledge usually have against astrology, I will only propose [to discuss] three of them which can be more negatively efficient; but before them, let us addressed the true part. And thus we say and conclude, like all [other] philosophers and astrologers that many things can be naturally [and] properly known, and, by means of astrology.

and very good experience.’⁵⁵⁸ This experience comes from ancient and wise experts in this subject, such as Ptolemy, thus:

in this matter no one needs to have doubts, but rather discernment and caution in the modus of conjecture. And much more in stating things without excess, as many do, by saying so effectively that there will be such and such times, and that will happen in the word such and such things, and [making it so that it] appears that they know it for certain.⁵⁵⁹

However, according to Dias, this regards above all weather forecast and natural things. As to nativities, he addresses this matter in detail in the introduction to the third treatise. This separation is an interesting strategy since nativities, being a practice on the very edge of licit astrology, required further argumentation. First, he distinguishes between the more general and common prognostications, such as weather forecasting, and the special and particular, where he places nativities. These, despite being ‘enjoyable to the curious’ are also ‘useful and necessary to all, especially those who are knowledgeable in the matters of medicine.’⁵⁶⁰ Then he notes that in what concerns nativities the ancients were too excessive, attributing all human actions to the influences of the stars. This, he goes on to say, is now more moderated, but the edit of Sixtus V was required, to regulate it. Nevertheless, Dias is certain that this does not forbid completely the study of nativities, as long as it is not practiced in matters which regard the native’s free will. It is here that he cites the opinion of Francisco Suárez, in his *Opus de virtute et statu religionis*, as well as of the Spanish Index of 1612, as noted previously (see Appendix III.B). He finishes this defence of the practice of nativities by discussing the Thomistic view that the celestial bodies naturally influence the bodily passions and natural inclinations, allowing some level of prediction of human action, but this can always be overturned by the individual’s will.

Simon Fallon presents a more detailed defence of astrology than both these writers, albeit discussing the same points and using the same standard argumentation. The essence of his discourse is the same as that of Delgado and Dias, but he examines each argument and its refutation individually. Fallon presents his defence, following exactly the same structure in both his texts. He divides it into four sections or ‘titles’: ‘What Astrology is and how it is distinct

⁵⁵⁸ he porém mui difficultosa de acertar, e suppoem boa philosophia no que a ouuer de exercitar bem, e mui boa experiência (Dias, tr.1, ch.3)

⁵⁵⁹ E assj não tem ninguem nesta materia que ter dúvida, mas tento e cautela no modo de conjecturar, e muito mais no falar, sem exceder como muitos fazem affirmando tão efficazmente que auera tais tempos e tais, e que sucederão no mundo estas cousas, e aquellas, que parece o têm por certo (Dias, tr.1, ch.3).

⁵⁶⁰ He materia esta a curiosos aparciuel, proueitoza e mui necessária a todos, principalmente aos que entendem em cousas tocantes a medecina (Dias, tr.3, proem).

from other sciences'; 'Whether Astrology is a science or not'; 'Whether Astrology is licit or not'; and 'Of the need, nobility and usefulness of Astrology'. The main difference between the two texts is perhaps the maturity of the argumentation and the authors mentioned. While in his lessons of 1630 he makes a rather poetical introduction followed by his defence, nine years later in the lessons from Santo Antônio, Fallon presents his arguments more directly, giving a more concise version of the earlier text. In the 1639 text Fallon's more straightforward posture is placed in evidence in his opening paragraphs, where he states that he will only address that which is absolutely necessary leaving the rest to the authors who already wrote extensively in this regard:

It is customary and common, in the beginning of these sciences, for the authors to make grand proemia declaring their greatness and excellence, and the subtleties they bring with them with the purpose of awakening in the human understanding the appetite for knowledge that according to Aristotle all have. At the beginning of judicial astrology, it is considered, [and] well, that such encomia are even more necessary. For differently from other sciences, it is popularly thought of as being of little validity in the world; furthermore, it has so many who have attacked it in writings and books, that it will need godfathers and defenders. However, as the brevity of the style used in schools is not compatible with that of apologies – leaving aside much of what could be said and can be reached in many great authors that in this matter sharpened their quills – I will only propose under this title of 'proemial question' what is compellingly necessary to know for those that, with a sincere spirit and catholic curiosity, apply themselves to this noble science, using for such effect the following titles.⁵⁶¹

In the first title, 'What thing Astrology is and how it is distinct from other sciences', he takes a different approach from the first two authors regarding the definition of astrology. Like them, Fallon considers it a natural science which studies the natural influences of the celestial bodies to prognosticate their effects on Earth. Then, he discusses its classification as a mixed science, according to Aristotle: half philosophy, since it has as its object the moving celestial bodies, and half mathematics, because such movement is studied through mathematics which considers it certain and determinate. He finishes with a small consideration on the origin of the name astrology. In the second title, 'Whether Astrology is a science or not', he puts forward the main arguments of its detractors, Pico della Mirandola, Benito Pereira, Martin Del Rio (and also

⁵⁶¹ Muj ordinario e comum he no principio das sciencias fazerem os Autores grandes prohaémios, declarando suas grandezas e excellências, e as subtilidades que consigo trazem afim de com isso espertar nos entendimentos humanos o apetite de saber que segundo Aristoteles todos tem. No principio da Astrologia iudiciaria se bem se considera são ainda mais necessários estes incomios, pois que ella não só como as outras sciencias corre praça de pouco ualida no mundo mais ainda tem tantos que com escritos e liuros a encontrarão, que lhe são bem necessários padrinhos e deffensores. Contudo como a brevidade do estilo usado nas Escolas se não compadece com o das Apologias, deixando aparte o muito que se pudera dizer, E se pode uer em muitos Autores graues, que nesta materia apararão a pena somente proporej aqui debaxo deste titulo de questão prohaemial o que de forsa he necessario saberem aqueles que com animo sincero e curiosidade catholica se applicão a esta nobre sciencia uzando para isso dos titulos seguintes (Fallon, Prohemial question).

Alessandro De Angelis in the 1630 version), and refutes them individually using the same arguments as Delgado and Dias. Regarding ‘Whether Astrology is licit or not’ in the third title, Fallon, like his colleagues, discusses several theological arguments showing them to be against superstitious astrology and not the true natural judicial astrology – namely, a practice of astrology that is fully based on the natural effects of the celestial bodies (therefore, natural), to produce its judgements and prognostications (thus, judicial).⁵⁶² Finally, in title four, ‘Of the need, nobility and usefulness of Astrology’, he quickly concludes that: 1) it is useful by itself because several theologians stated that if the state of innocence had endured, astrology would be the only natural science; 2) it is of great use for other sciences such as medicine, navigation, agriculture, as well as theology, according to Jean de Gerson; 3) its nobility derives from its very object, the superior celestial bodies; and 4) it is profitable and necessary for many reasons; one of them being that Aristotle advised Alexander the Great to engage in no enterprise without the counsel of an astrologer.⁵⁶³

Simon Fallon is not innovative in his defence but attempts to replicate in a summarised way the more complex defences of those writing against Pico. It is likely that at this time the debate over the validity of astrology was intensifying and a more complex text was required. His apologia is in many ways akin to Hugh Sempill’s text on the validity of astrology and it generally attempts to counter the sequence of argumentation of both Benito Pereira and Alessandro De Angelis, the Jesuits that authored the two most noticeable attacks on astrology.

Luís Gonzaga’s text appears six decades after Fallon’s and at a time when astrology was being expunged from many academic circles, therefore his defence focuses more on the validity of astrology as a form of knowledge, and much less on religious and spiritual implications. The discourse is very blunt and straightforward, perhaps more than any of the previous texts, a posture that becomes immediately clear in the opening paragraph:

Ignorance has always disguised itself by rejecting as useless the sciences, and by despising as trifling the arts that either it could not reach [i.e. understand] or did not know how to practice, concealing the little that it could reach with its eyes, by stating that it is idle to waste time and hurt the eyes in observations of the Sun when with its spots it becomes so disagreeable to the sight; and thereby masking with these stains not so much the Sun, as the lights of all sciences and arts, while concealing the very legitimacy of their knowledge and in it [also concealing] the outlines and disguise of their own ignorance. This only reveals them not to be eagles – because among them the object that

⁵⁶² This corresponds with the previous observation that most practitioners and students of astrology named their subject judicial astrology. This in turn could be natural, and thus licit, or superstitious, and therefore illicit.

⁵⁶³ Here he is referring to the *Secretum Secretorum* by Pseudo-Aristotle.

is examined is never to blame nor despised for its defects, but instead he who does not reach it is thus rejected for his inability.⁵⁶⁴

He then goes on the question the validity of the critiques and the critics, and above all their motivations. Among them he places as head of this attack no longer Giovanni Pico della Mirandola, but Alexandro de Angelis, who focuses its attack on the doctrine of astrology, more than in its religious lawfulness:

This mask, I am persuaded, used and still in use today, [is put on by] those that arrogantly call the science of astrology vain, ridiculous, false and pernicious (and there is one that calls it the plague of the republics, as if it was such a contagious evil that the doctors could not entomb it), wasting so much time in composing volumes, creating arguments, alleging authorities, and finding reasons, for with them, in their propositions and conclusions, show that astrology has no foundation. Among these Father Alexandro de Angelis is the most committed, to whom [in particular] and to all the bitter critics of astrology and the complete destructive reasoning of all their discourses, I propose the following dilemma: Do they know what true astrology is, or not? If they do not, how can they write against something they are ignorant of.⁵⁶⁵

Gonzaga then ponders that, if they do, then how can they be ignorant of the teaching of celestial influence that has been passed down by so many Christian philosophers and astrologers? If it was a religious issue, they could have simple accused them of heresy and that would end the discussion. But their continuous attack on what everyone knows to be true, only diverts the curious student from this science by instilling him with ill-founded doubts, and perhaps even pernicious ones; for this ill-pondering zealous might impede someone who favours mathematics to become a great man in this science. Having dismissed any arguments from those who are not knowledgeable of astrology, he discusses the limitations of astrology regarding the respect for free will, which differentiates the illicit superstitious astrology of the ancients (Chaldean, Hebrews and Priscillianists) from the true one, practiced by any good Catholic. This licit use of astrology and predictions is based solely on the influences of the planets ‘in their conjunctions, oppositions and other aspects all founded on physical and philosophical

⁵⁶⁴ Disfarce foj sempre da ignorancia regejtat por inuteis as siencias, e desprezar por humildes as artes, que ou não pode alcançar, ou não soube exercitar, encobrando talvez o pouco que com sua vista alcança com dizer que ociosidade he gastar tempo, e quebrar os olhos nas obseruacoes do Sol, quando elle por suas maculas tanto dezegrada á vista: Mascaramo com estas nodoas não tanto ao Sol, e nelle as luzes de todas as sciencias, e artes; quanto emcubriendo em si a litigimidade de seos entendimentos e nella as traças, e disfarces de sua ignorancia, em que so manifestam não serem Aguias: porque jamais entre estas se pos a culpa a objecto, que examinam, para por seos defeytos ser desprezado, mais si ao sogeyto que o não alcança para por sua incapacidade ser regejtado (Gonzaga, introduction).

⁵⁶⁵ Desta mascara, me persuado, uzaram, e uzam a inda hoje os que a boca cheya chamam a sciencia da Astrologia vam, ridicula, falsa, perniciosa, e tal ha que lhe chama peste das respublicas, como se fohe mal tam contagioso, a que os medicos não pudesem sepultar: gastando tempo em compor volumes, formar argumentos allegar athoridades e descobrir rezoens, pellas quais mostrem não ter a Astrologia fundamento algum nas propozicoens que propoem e nas conculzoens, que infere; sendo entre estes o mais empenhado o Padre Alexandre de Angelos: ao qual, e nele a todos os mais zoylos da Astrologia so proponho para cabal rezam destructiva de todos os seos descursos o seguinte dilema. Ou sabem de que trata a verdadeira Astrologia, ou não? Se o não sabem como escrevem contra o que ignoram ... (Gonzaga, introduction).

reasonings, many times achieved by experience'.⁵⁶⁶ Surprisingly, there is also no mention of natural and judicial astrology, only of 'true' and 'superstitious' astrology.

Gonzaga closes his discussion by stating the three reasons that led him to write this introduction and the treatise. Above all, his intention is to show the student the true astrology, and not the one practiced by the ignorant and which is covered in so many errors and superstitions. By this he intends to help the Catholic astrologers who despite their good and lawful practice are still defamed together with all the rest, and ultimately to present an astrology suitable to both physics and religion:

I spent longer than I desired on this proem for three reasons. The first, so that it may not be judged as idleness what is praiseworthy curiosity in those that wish to know what the science of astrology is, so that they know the errors that the ancients have fallen into and to whom is due the name of superstitious rather than that of astrologers. And to avoid them and warn the others, that like the ignorant still believe in such auguries and falsehoods. And to take advantage of that which is true and set the limits of probability with which we infer some future effects whose true certainty and knowledge God reserved to Himself and communicates only to those He deems fit when He so desires. The second, so that in some manner it may help the true and Catholic astrologers that without distinction are slandered in the apologies that are generally made against astrology and the astrologers. The third so that the reason and motive for which I offer this treatise is known – the motive being to satisfy whoever has the patience to hear me. And the reason which permits [me] to write about and deal with astrology, is the same: namely, addressing all that the ancients said about contingent futures that occurred by virtue of the stars and their aspects as a false story, a fable or a mystique, as things based on pure imagination and dreams; and not to give those [prognostications] where there is some physical connection, such as [those on] winds, rains, etc. more probability than that which physical reasons concede and the Holy Mother Church approves.⁵⁶⁷

At the beginning of the eighteenth century, one would expect to find in Gonzaga's defence a discussion of astrology's placement within the new conceptions of the Cosmos. However, this topic is not mentioned at all. His discourse is centred on the distinction of proper astrology from

⁵⁶⁶ ... em suas conjunções, oposições e mais aspetos fundado tudo em rezoens físicas e philosophicas alcançadas já muitas vezes por experiencia (Gonzaga, introduction).

⁵⁶⁷ Dilatejme mais, do que eudezejava neste proemio por 3 principios 1.º para que se não julgue ociozidade o que louvável curiosidade nos que querem saber o de que trata esta sciencia da Astrologia para conhecerem os erros, em que cahiram os antigos, a quem compete maos o nome de supresticiosos, que de Astrologos, e para os evitarem em sy, adivirtirem nos outros, que como ignorantes ainda creem em semelhantes agouros, e fingimentos e juntamente para se aproveitarem, do verdadeyro, que entre pos limites da probabilidade com que infirmos alguns effeyros futuros, cuja verdadeira certeza, e sciencia reservou deus para sy, e a comunica aos que, e quando he servido. 2.º para de algum modo acudir pollos verdadeyros, e catholicos Astrologios, que sem distincção andam calumniados nas apologias, que contra a Astrologia ou astrologos em que geral se fazem, e tem feyto devendose fazer separação dos que distinguem o bom, e licito do mau, e prohibido, para que do licito saja, e siga cada hum o que quizer, e do mau e prohibido todos, e de tudo julgam. O 3.º para que conste o sintido, e o motivo; porque dou ese tratado, sendo o motivo fazer a vontade a quem tem a paciencia de me ouvir. E o sintido he o mesmo, em que se permite escrever, e tratar da Astrologia, que he tendo por a baze e referindo como huma historia fingida, ou huma fabula huma mistica, tudo o que os Antigos affirmarão de futuros contingentes, que sucediriam por virtudes dos Astros, e de seus aspectos como couzas fundadas em pura imaginação; e sonho; e naquelas, em que pode haver alguma conexam phjsica como para os ventos, chuvas, etc. lhe não dam mais probabilidade que aquella, que as rezoens phjsicas lhe concedem, e a Sta. Madre Igreja aprova (Gonzaga, introduction).

its ignorant ill-practiced versions and to defend it from the heavy weight of constant criticism. This shows that his main concern was, as it was for the authors before him, to salvage astrology from its popular and lower quality counterpart and uphold its value against ill-intentioned attacks. Oddly, his main contender is Alessandro De Angelis, whose text is by then ninety years old. Gonzaga does not address any of the new and more technically focused criticisms of astrology by recent Jesuit authors, such as Claude Dechaies, which he quotes on technical matters, or Antoine Thomas. Almost a century has passed, and his intentions remain in essence the same as Delgado's, to show what true astrology is and to safeguard its dedicated students and practitioners from misunderstanding and slander. However, differently from Delgado's defence, that of Gonzaga, although passionate and straightforward, appears inadequate by not addressing the scientific positioning of astrology of his time. Perhaps in the Aristotelian context in which he was teaching, he thought it unnecessary, but still this void is as unexpected as his course on astrology in Santo Antão in the first decades of the eighteenth century.

A homily for the stars

All four authors undoubtedly argue for the recognition of astrology as the natural science that they consider it to be. Their argumentation follows the usual lines of the traditional defences of astrology such as those of Lucio Belanti, Gabriele Pirovano and Michele de Petrasanta, supplemented by the views of many other traditional authors. In all four apologies, notwithstanding their particularities, the purpose of their authors is clear: to teach their students a natural and lawful judiciary astrology that can be safely used by a Christian practitioner. For this purpose, astrology is defined both within the bounds of natural science and within the constraints of Christian doctrine. The formula changes very little in each text. In all of them astrology is first established to be a proper science in the Aristotelian sense: it has natural causes whose natural effects are known, perceivable and understandable by the human mind. Its results are derived through deduction and conjecture from the study of these causes and effects, supported by centuries of experience. It is presented as complex, but no more so than many other sciences; the authors recognise that there are some divergences of methodology among its practitioners (as in other applied sciences), but in essence its body of knowledge is the same. They state that the practice of astrology is not easy, and because of this proneness to error it requires study, dedication and caution like any other form of knowledge. Astrology is often presented as a misunderstood science, as there is in the public perception a mistaken association

between the malpractice of any ignorant person claiming to be an astrologer and the ultimate validity of astrology itself. Having secured the position of astrology as a science, the authors turn to the religious part of the apologia. Here the matter is not so much whether astrology works and what it is possible to do with it, but rather what is permissible to do within the Christian view of the Word. Whatever arrangement is chosen for the argumentation, the conclusion is one and the same: true and lawful astrology deals only with the natural effects of the celestial causes; anything else is superstition, divination, or the work of the devil. Any Christian practice must be set within the bounds established by the bulls of Sixtus V and Urban VIII.

Although their arguments are fundamentally the same, the authors can be differentiated by their posture and by the manner in which they organize their defence. The first, João Delgado, clearly shows knowledge and in-depth experience of the problem, going straight to the central arguments and cautioning the student on how to handle the critics and on how to defend his practice of astrology. Sebastião Dias, who is working at a time where there is more ease regarding the practice of astrology, makes a summarised defence. Simon Fallon is more cautious and chooses to display erudition in a detailed argumentation. This is not strange considering that he is teaching at the time when, despite the publication of several Jesuit texts favourable to astrology, the recent bull of Urban VIII had again pressed for caution when dealing with the topic. Gonzaga, who is years apart from the others, appears quite genuine and feverous in his defence of astrology, yet, by maintaining almost the same ideas, he seems somewhat displaced in time regarding his discourse. The question now arises on the impact of these religious, philosophical, and scientific standards on the teaching of the astrological doctrine. Is it modified to accommodate them? Are there differences in the foundational concepts, or only in their range of applications in human life? How different is a Jesuit astrological curriculum from others of the same period? The following study of the astrological doctrine offered by the texts endeavours to answer these and other questions.

The astrological syllabus

The first three authors, Delgado, Dias and Fallon follow a similar structure in their astrological programmes; thus, a comparative study of their works is, for the most part, straightforward. The similarities between Delgado and Dias can be explained by the fact that Dias immediately followed Delgado as teacher of the *Aula da Esfera*. It is even possible that they worked together

or that Dias generally followed Delgado's materials. The main difference is that Dias mentions a fourth treatise on elections which Delgado does not address in his text, choosing to dedicate the corresponding section to medical astrology. Fallon, who likely studied from these or very similar texts, follows the same general structure, but separates and develops the calculation of the astrological chart or celestial figure into an independent section; he does the same for the methods of prediction regarding nativities, adding two treatises that do not exist separately in Delgado and Dias. Yet, in his earlier text Fallon includes the calculation of the figure in the section on the general principles, and the methods of prediction in the treatise on nativities, following more closely the older texts. Delgado also includes the methods of prediction in the nativity section, while Dias does not mention them as his treatise appears to be incomplete; both omit the calculation of the astrological figure, possibly dealing with that topic in their astronomy lessons.

Table II.1 – Comparison of the structure of the five astrological texts

João Delgado	Sebastião Dias	Simon Fallon (1)	Simon Fallon (2)	Luís Gonzaga
Proem	[introduction]	Proem	Proemial question	<i>Introduction</i>
1. Principles of astrology	1. Principles of astrology	1. General principles	1. The celestial figure 2. General principles	[1] <i>Principles</i>
2. Judgement of weather	[2. Judgement of weather]	2. Judgement of weather	3. Judgement of weather	[2] <i>Nativities</i>
3. Nativities	3. Nativities	3. Nativities	4. Nativities	[3] <i>Medicine</i>
4. Judgements for medicine	[4. Elections]		5. Directions, profecions,, revolutions	[4] <i>Weather</i>

Gonzaga, however, follows a completely different structure, so it is more difficult to establish a direct correlation with the other texts. In the *Theatro astrologico* each application of astrology is not visibly separated. He begins by dealing with general concepts, then nativities and medicine, and afterwards meteorology, but in some chapters the topics are dealt with together. For this reason and considering other significant differences in the treatment of the astrological doctrine, Gonzaga's text will be dealt with separately.

The principles of astrology

After the appropriate introductions and apologies all authors begin by addressing the foundational concepts of astrology. In one manner or another they all address the three main principles on which the astrological doctrine is founded: the signs of the zodiac; the planets, their nature and states, known as essential and accidental dignities; and the twelve celestial houses. Dias and Fallon also add a section on the fixed stars when they address the zodiac, a topic Delgado does not include in his introductory chapters, deferring it to the second treatise. The order by which each topic is presented is almost identical in Delgado and Fallon who begin with the zodiac and the signs, proceeding to the planets, their dignities and then the houses; Dias chooses to discuss the planets and their dignities first and then goes on to the signs and the houses. The selection of the topics and their arrangement follows the standard model for most astrology primers.

The signs and the zodiac

All authors begin their introduction of the zodiac with the clear assumption that the students, having completed the previous lessons on the sphere, are already familiar with it. Delgado and Dias briefly recall the definition of the ecliptic as one of the maximum circles of the sphere and the zodiac as a belt surrounding it; Fallon proceeds directly to explain its divisions, that is, the twelve signs and their properties. While in its astronomical usage the zodiac and the signs are the main points of reference for measuring the movement of the planets, in astrology they also become a tool to measure the quality, strength and type of action that the planets signify in the sublunary world. This action is deduced in the first place from the natural properties of the signs, which is chiefly derived from the association of the signs with the natural fundamental qualities and the corresponding elements and humours.⁵⁶⁸ Following the astrological tradition, the authors ascribe the qualities and elements to each of the twelve signs in the sequence, fire, earth, air, and water, beginning in the first sign, Aries. From this it results that the element of fire is assigned to Aries, earth is given to the following sign, Taurus, air is attributed to the next sign of Gemini, water to Cancer, again Fire to Leo, earth to Virgo, and so on until the last sign, Pisces which is correlated to the element water (see table below).⁵⁶⁹

⁵⁶⁸ That is: hot and dry are the qualities of the element Fire and the corresponding complexion, Choleric; cold and dry to Earth and Melancholic; hot and dry to Air and Sanguine; cold and dry to Water and Phlegmatic, following common Galenic medical doctrine.

⁵⁶⁹ This standard astrological doctrine, that can be found in all astrological books of the Medieval or Early Modern period, either discussed in detail or simply listed. Ptolemy and other classical authors, such as the highly influential Dorotheus do

This attribution to the elements forms what is known as the triplicities, that is, three signs for each of the four elements: Aries, Leo, and Sagittarius form the fire triplicity; Taurus, Virgo, and Capricorn, the earth triplicity; Gemini, Libra, and Aquarius, the air triplicity; Cancer, Scorpio, and Pisces, the water triplicity. From this basis are attributed the next set of qualities. First, the straightforward association with the complexions or humours, which are directly derived from the corresponding elements. Thus, all signs of the element fire are choleric, all signs of earth are melancholic, all signs of air are sanguine, and all signs of water are phlegmatic. From here are derived other attributes: due to their hot quality all signs of the fire and air elements are also considered masculine and diurnal, while all signs carrying the cold quality of the earth and water elements are feminine and nocturnal.

Table II.2 – Elemental qualities of the signs

Sign	Qualities, element	Humour	Gender	Sect
♈ Aries	Hot & dry, fire	Choleric	Masculine	Diurnal
♉ Taurus	Cold & dry, earth	Melancholic	Feminine	Nocturnal
♊ Gemini	Hot & moist, air	Sanguine	Masculine	Diurnal
♋ Cancer	Cold & moist, water	Phlegmatic	Feminine	Nocturnal
♌ Leo	Hot & dry, fire	Choleric	Masculine	Diurnal
♍ Virgo	Cold & dry, earth	Melancholic	Feminine	Nocturnal
♎ Libra	Hot & moist, air	Sanguine	Masculine	Diurnal
♏ Scorpio	Cold & moist, water	Phlegmatic	Feminine	Nocturnal
♐ Sagittarius	Hot & dry, fire	Choleric	Masculine	Diurnal
♑ Capricorn	Cold & dry, earth	Melancholic	Feminine	Nocturnal
♒ Aquarius	Hot & moist, air	Sanguine	Masculine	Diurnal
♓ Pisces	Cold & moist, water	Phlegmatic	Feminine	Nocturnal

Then follow the seasonal attributions derived from the yearly cycle. Here the zodiac is divided into four quadrants or quarters, each comprised of three signs, and related to the qualities that the year displays when the Sun is traveling through these signs: the four seasons, Spring, Summer, Autumn and Winter. These are also correlated to the four qualities, the humours, to which are added the ages of man.⁵⁷⁰ Thus, Aries, Taurus, and Gemini are the signs of Spring, which is hot and moist, sanguine, and corresponds to the age of childhood; Cancer, Leo, and

not make this association directly, giving emphasis to gender, sect and directions of space; see *Tetrabiblos* I.10-12 and I.18, or *Carmen Astrologicum* I.1 (Dorotheus of Sidon, *Carmen Astrologicum*, 2019, 61–62.) Conversely, Vettius Valens, a contemporary of Ptolemy, clearly presents the elemental association with the signs, showing that the two approaches coexisted in classical astrological practice. By the medieval period this association of signs and elements by means of the triplicities becomes standard, see for example Alcabitius *Introduction* I.16 or Albumasar *The Great Introduction* II.3 – Charles Burnett, Keiji Yamamoto, and Michio Yano, *Al-Qabisi (Alcabitius): the introduction to astrology* (London: The Warburg Institute, 2004), 25–27; Abū Maʿšar, *The Great Introduction to Astrology*, 1:191–97.

⁵⁷⁰ These are seen here as the natural equivalent of the yearly cycle: childhood, youth, maturity and old age. This is a traditional association that appears in many authors. For example, Ptolemy mentions this in *Tetrabiblos* I.10.

Virgo are the signs of Summer, which is hot and dry, choleric, and relates to youth; Libra, Scorpio, and Sagittarius, to Autumn, cold and dry, melancholic, and associated with maturity; finally, Capricorn, Aquarius and Pisces, to Winter, cold and moist, phlegmatic and signifying old age. Dias and Fallon also add here some geographical considerations.

While Dias adds the common association of the elements and the corresponding seasons to the four directions of space,⁵⁷¹ Fallon is more innovative, providing the correspondence with the four continents: Europe to Spring (and air), Africa to Summer (and fire), Asia to Autumn (and earth), and America to Winter (and water). His attribution follows the common idea that the new continent would be phlegmatic and watery in nature, as seen in Part Two in the words of Enrico Martínez and Diego de Cisneros. Although both the association of the seasons and elements with the ages and geography are very generalist, being in astrological judgement easily superseded by particular characteristics, they are still considered in the overall description of people and places.

Table II.3 – Elemental qualities of the signs

Season	Signs	Qualities, element	Humour	Ages	Continents
Spring	♈ Aries	Hot & moist, air	Sanguine	Childhood	Europe
	♉ Taurus				
	♊ Gemini				
Summer	♋ Cancer	Hot & dry, fire	Choleric	Youth	Africa
	♌ Leo				
	♍ Virgo				
Autumn	♎ Libra	Cold & dry, earth	Melancholic	Maturity	Asia
	♏ Scorpio				
	♐ Sagittarius				
Winter	♑ Capricorn	Cold & moist, water	Phlegmatic	Old age	America
	♒ Aquarius				
	♓ Pisces				

To these general seasonal attributes, follow those more particular to the signs: the concepts of movable, fixed and common. These three attributes correspond to the beginning, middle and end segments of a season, the first sign of a season being movable, the second, fixed, and the third and last, common. The movable signs (Aries, Cancer, Libra, and Capricorn) bring or move in the new season, the fixed (Taurus, Leo, Scorpio, and Aquarius) settle the seasonal qualities, and the common (Gemini, Virgo, Sagittarius, and Pisces) display qualities of both the preceding and the following season. The grouping of the four elements with these three attributes results

⁵⁷¹ Spring and air to the East, Summer and fire to the West, Autumn and earth to the South, and Winter and water to the North.

in twelve unique combinations, one for each of the signs. Thus, for example, of the three signs of fire. Aries is movable, being in first sign of Spring, Leo is fixed, being the middle sign of Summer, and Sagittarius is common, as the last sign of Autumn.

After these come attributes that are derived from the very nature and movement of the ecliptic and the zodiac. The first is that of northern or boreal signs, that is those that are placed in the northern celestial hemisphere (Aries to Virgo), and southern or austral signs, those of the southern celestial hemisphere (Libra to Pisces). In regard to their position in the ecliptic and being the markers of the beginning of the seasons, Aries and Libra are also called equinoctial signs, while Cancer and Capricorn are named solstitial signs. Another attribute relates to the ascending speed of the signs due to their inclination. This divides the signs into two categories: those of right or slow ascension (Cancer to Sagittarius), also named descending signs because when the Sun is in them it declines towards the south; and those of oblique, crooked or fast ascension (Capricorn to Gemini), also called ascending signs because when the Sun in them it ascends to the north. Following Ptolemy, the authors also mention the common divisions of commanding and obeying signs, of solar and lunar signs, and the antiscia.⁵⁷²

Table II.4 – Movable, Fixed and Common signs

Sign	Qualities	Element	Movement
♈ Aries	Hot & dry	Fire	Movable
♉ Taurus	Cold & dry	Earth	Fixed
♊ Gemini	Hot & moist	Air	Common
♋ Cancer	Cold & moist	Water	Movable
♌ Leo	Hot & dry	Fire	Fixed
♍ Virgo	Cold & dry	Earth	Common
♎ Libra	Hot & moist	Air	Movable
♏ Scorpio	Cold & moist	Water	Fixed
♐ Sagittarius	Hot & dry	Fire	Common
♑ Capricorn	Cold & dry	Earth	Movable
♒ Aquarius	Hot & moist	Air	Fixed
♓ Pisces	Cold & moist	Water	Common

⁵⁷² The commanding signs are all northern signs, from Aries to Virgo, and the obeying signs are the southern ones, from Libra to Pisces. The zodiac is divided into a Solar half: Leo (house of the Sun), Virgo, Libra, Scorpio, Sagittarius, and Capricorn; and a Lunar half: Cancer (house of the Moon), Gemini, Taurus, Aries, Pisces, and Aquarius. The signs in antiscia are those equidistant from the solstice points (0° Cancer and 0° Capricorn): thus, Cancer and Gemini are in antiscia, as are Leo and Taurus, Virgo and Aries, Libra and Pisces, Scorpio and Aquarius, Sagittarius and Capricorn. This occurs because when the Sun is transiting in these paired signs the days have equal duration. The concept is usually taken to the degree: thus, a planet in 20° of Virgo is said to be in antiscion to another at 10° of Aries. In astrological judgement this is almost the equivalent of a conjunction of the planets; if a planet is in the opposite degree of the antiscia it is said to be in counter-antiscia, for the example given a planet in 20° Virgo would be in counter-antiscia to another at 10° Libra (the opposing degree of the antiscia at 10° Aries).



Figure II.1 – Diagrams to memorise the attributes of the signs

BB, *Commentary on the Sphere of Sacrobosco* by Johann Chrysostomus Gall S.J. (1586-1643), fol. 308r-v.

Top – the signs according to the four elements: fire, earth, air and water (fol. 308r).

Bottom – the signs according to three movements or modalities: movable, fixed and common (fol. 308v).

Having finished with the detailed explanation of these natural and astronomical attributes of the signs, Dias and Fallon present a list of several others, such as voice (strong, medium and mute), rational or irrational, domestic, feral, quadrupedal, as well as correspondences to colours and animals, and also winds, directions of space, climates, and parts of the body. Apart from the winds, geographical attributes and the parts of the body, which were seen as natural and used in weather forecast and medicine, the others could not be easily explained by a natural rationale. They are derived from other types of attribution, such as symbolic or behavioural, most of which were attained from experience and passed down by centuries of teaching and practice. Many of these attributes were by the mid-sixteenth century considered foolish and even superstitious. Thus, Dias and Fallon chose only to list them without further explanation. Delgado, who is quite resolute in teaching a more rigorous natural astrology, does not mention them at this point, discussing only those more strictly derived from the elements, the seasons and the nature of the ecliptic; some of which are chiefly discussed in the astronomical section of his course. However, later in the nativities section, Delgado lists some of these attributes he sees fit to be used in the judgement of sickness, physiognomy and natural inclinations.

The planets

These are the central tool of the astrological system, as it is through their movement and configurations that the correlation to earthly events is established.⁵⁷³ After the complex rules of planetary movements in the theories of the planets, explained in the astronomical part of the course, here in the practical astrological section, their astrological doctrine is presented. This is divided into three parts: the nature of the planets and the definition of their individual attributes; the essential dignities which are used to measure the planets intrinsic strength as derived from the position in the signs; and the accidental dignities which measure the planets' efficacy according to their motion, speed and relation with the other planets.

As with the signs, all authors first address the natural qualities of the planets which entails their traditional correlation to the four qualities and the four humours. Thus, Saturn is associated with the qualities cold and dry and to the melancholic humour, Jupiter to hot and moist and to the sanguine temperament, Mars to hot and dry, and choleric, Venus is cold and moist and phlegmatic according to Delgado and Dias, while Fallon defines it as hot and moist,⁵⁷⁴ Mercury

⁵⁷³ See, for example, *The Greater Introduction* III.1 where Albumasar discusses the use of the planets as the main indicators in astrology – Abū Maʿšar, *The Great Introduction to Astrology*, 1:255–231.

⁵⁷⁴ The qualities ascribed to Venus vary according to Ptolemaic and Arabic sources. Ptolemy favours the hot and moist qualities for Venus, as it is a beneficial planet that promotes growth. The Arabic authors refer to it as being cold and moist,

is considered as having no individual quality, acquiring the qualities of the planets to which it is conjoined; there is nonetheless an identification with the dry quality as Saturn.

The Sun and the Moon are presented as particular cases as is standard. Their qualities are associated with their cycles. While the Sun has an intrinsic hot and dry nature, it is a temperate one as the solar qualities change according to the seasons, as seen above: in Spring it is hot and moist, and sanguine; in Summer, hot and dry, and choleric; in Autumn is cold and dry, and melancholic, and in Winter, cold and dry, and phlegmatic. The Moon, although cold and moist in its essential nature, follows this very cycle in its phases: between the New Moon and First Quarter it is hot and moist, and sanguine; from the First Quarter to Full Moon it becomes hot and dry, and choleric; moving from Full Moon to Last Quarter it is cold and dry, and melancholic; and from Last Quarter to New Moon, cold and moist, and phlegmatic. The planets present similar, though less noticeable changes of quality in their cycles; only Delgado refers to this matter and its practical application is briefly mentioned by both Delgado and Fallon in the section on weather forecasting.

From this association with the qualities and humours are derived the other main natural attributes of the planets. First is the paring of the planets by similarity: Sun and Mars, being both fiery; Saturn and Mercury, being both dry; Moon and Venus, being both watery, and Jupiter in its own category as an airy planet. Next are the beneficial or malefic properties of the planets, being Saturn and Mars being considered malefic due to the excess of destructive qualities in their nature, respectively cold and heat. Conversely, Jupiter and Venus, due to their nourishing qualities of moderate heat and moisture are considered beneficial planets. The Sun is considered as generally benign, as is the Moon; Mercury is by itself weakly benign, but more so when properly configured with beneficial planets. All authors note that the malefic and beneficial qualities of a planet are always relative to context, since Saturn favours all venomous animals and plants, and Mars is propitious for certain medical operations.

The following planetary quality is that of masculine and feminine. Sun, Jupiter, and Mars are considered masculine planets because they are hot, while the Moon and Venus, feminine due to their moist quality; Saturn is considered to engender weak masculinity, as is Mercury, but again the latter's expression of gender depends mainly on its configuration with the other

being a feminine planet. This latter option also favours the symmetry of the astrological system. Since the Sun and the Moon vary according respectively to the seasons and phases, the five planets would represent each an element and a humour: Saturn, earth and melancholy, Jupiter, air and sanguine, Mars, fire and choleric, and Venus, water and phlegmatic; Mercury would be neutral.

planets. Next the planets are classified as diurnal and nocturnal according to how they manifest their nature most constructively. This is sometimes referred to as their ‘faction’ or ‘sect’. Sun and Jupiter are best when realising their heat, so they are diurnal; correspondingly, the Moon and Venus are best when moist, therefore nocturnal. However, Saturn is considered as diurnal because, due to its excessive cold its effect is more balanced when tempered by the heat of day. Similarly, Mars is nocturnal because it is at its prime when its excess of heat is tempered by the coldness and moisture of night.⁵⁷⁵

Table 11.5 – Natural qualities (or natures) of the planets

	Planet	Qualities, element	Humour	Gender	Sect
♄	Saturn	Cold & dry, earth	Melancholic	Masculine	Diurnal
♃	Jupiter	Hot & moist, air	Sanguine	Masculine	Diurnal
♂	Mars	Hot & dry, fire	Choleric	Masculine	Nocturnal
☉	Sun	Hot & dry, fire	Alters with season	Masculine	Diurnal
♀	Venus	Cold & moist, water	Phlegmatic	Feminine	Nocturnal
☿	Mercury	Variable	Variable	Neutral	Variable
♁	Moon	Cold & moist, water	Alters with phase	Feminine	Nocturnal

On this topic Delgado’s exposition is by far the most detailed. Following a mindset more centred on the models of natural philosophy he refers to the four qualities of hot, cold, dry and moist, and their complex and simple variations, associating each planet not just with a pair of qualities, but also with different levels of each quality. However, following the same inclination towards an astrological doctrine centred on natural causes and principles, he only teaches these natural qualities of the planets. Dias sets out exactly the same doctrine but is not as detailed in the intricacy of the qualities and the elements. He also offers a detailed list of other properties and effects of each planet, mentioning their significations on weather, health, plants, actions, professions, and places. Fallon is very concise in his presentation of the natures of the planets, listing their attributes with just the basic explanation. He also lists, like Dias, other significations of the planets, but in much less detail. Interestingly, in the earlier version of his text, Fallon also chooses to discuss in this section the physical attributes of the planets, such as size, speed, and distance to the Earth; however, he does not connect these to any astrological implications.

⁵⁷⁵ See *Tetrabiblos* 1.7 for the traditional Ptolemaic explanation of diurnal and nocturnal planets.

The essential dignities

As mentioned before, these dignities are related to the position of the planets in the signs or even in certain degrees of the zodiac. If the planet is placed in a sign or degree where its intrinsic nature is fortified, it is said to be essentially dignified; on the contrary, if it is placed in a sector of the zodiac where its nature is diminished, it is said to be essentially debilitated.⁵⁷⁶ All three authors address this topic within a similar scheme common to almost all astrology texts. They first discuss the main forms of dignity, listing them by order of importance: house, exaltation, triplicity, term and face; other secondary types of dignity are discussed at the end of the text.

First is explained the highest of the essential dignities, that of house or domicile (whose rationale was discussed in Part Two) and its corresponding debility, the exile or detriment. According to this fundamental system of astrological doctrine Leo is the house of the Sun, Cancer is the house of the Moon, Gemini and Virgo, the houses of Mercury, Taurus and Libra, of Venus, Aries and Scorpio, of Mars, Sagittarius and Pisces, of Jupiter, and Capricorn and Aquarius those of Saturn. If the planet is positioned in a sign which is its house it is in its greater essential strength. The dignity of house has an equivalent debility called ‘exile’ or ‘detriment’. Planets are considered to be in exile when placed in the opposite signs to that of their house (see table below); a planet in this position is considered to be in its weakest essential state.

Table 11.6 – Houses and exiles of the planets

Sign	House	Exile
♈ Aries	♂ Mars	♀ Venus
♉ Taurus	♀ Venus	♂ Mars
♊ Gemini	☿ Mercury	♃ Jupiter
♋ Cancer	☾ Moon	♄ Saturn
♌ Leo	☼ Sun	♄ Saturn
♍ Virgo	☿ Mercury	♃ Jupiter
♎ Libra	♀ Venus	♂ Mars
♏ Scorpio	♂ Mars	♀ Venus
♐ Sagittarius	♃ Jupiter	☿ Mercury
♑ Capricorn	♄ Saturn	☾ Moon
♒ Aquarius	♄ Saturn	☼ Sun
♓ Pisces	♃ Jupiter	☿ Mercury

⁵⁷⁶ The essential dignities are another core element of the astrological doctrine that is present in all major astrological texts. Depending on the complexity of the text, these are explained in detail or simply enumerate them. Ptolemy, the main source for the lessons of Santo Antão, debates each type of dignity in the eight final chapters of book I, explaining their underlying rationale; see *Tetrabiblos* I.17-24. Alcabitius’ *Introduction*, being a more succinct and practical book only describes each of the dignity and their function in judgement, offering little or no explanation of their rationale; see *Introduction* I.13-23.

Table II.7 – Symmetry of the planetary houses⁵⁷⁷

♄ Saturn	♒ Aquarius		
♃ Jupiter	♓ Pisces		
♂ Mars	♈ Aries		
♀ Venus	♉ Taurus		
☿ Mercury	♊ Gemini		
☾ Moon	♋ Cancer	☾	♀ ♀ ♂ ♃ ♄
☼ Sun	♌ Leo	☼	
☿ Mercury	♍ Virgo		
♀ Venus	♎ Libra		
♂ Mars	♏ Scorpio		
♃ Jupiter	♐ Sagittarius		
♄ Saturn	♑ Capricorn		

The authors also take note of the joy of the planets, that is the houses which are more akin to the manifestation of their qualities; these are: Leo for the Sun and Cancer for the Moon (since they are their only houses), Virgo for Mercury, Taurus for Venus, Scorpio for Mars, Sagittarius for Jupiter, and Aquarius for Saturn.

Next is discussed the second essential dignity, the exaltation and its corresponding debility, the fall. The Sun is said to be exalted in the sign of Aries, the Moon in Taurus, Mercury in Virgo, Venus in Pisces, Mars in Capricorn, Jupiter in Cancer, and Saturn in Libra. They are considered in fall, and thus debilitated, when in the opposite signs (see table below).

Table II.8 – Exaltations and falls of the planets

Planet	Exaltation	Fall
♄ Saturn	♎ Libra	♈ Aries
♃ Jupiter	♋ Cancer	♑ Capricorn
♂ Mars	♑ Capricorn	♋ Cancer
☼ Sun	♈ Aries	♎ Libra
♀ Venus	♓ Pisces	♌ Virgo
☿ Mercury	♍ Virgo	♓ Pisces
☾ Moon	♉ Taurus	♏ Scorpio

As discussed in Chapter 9, Ptolemy's explanation of these two forms of dignity was based on natural Aristotelian principles: the houses are explained by the correlation of the position of the planets in the spheres and the quality of the seasonal cycles, while the exaltations are supported by the affinity of the planet's quality with the directions of space in combination with the

⁵⁷⁷ See figure 8.1 for a representation of this scheme in Magini's *Isagoge* and its equivalent in Chinese from Schall Von Bell's *Tianxue shiyong*.

seasonal weather.⁵⁷⁸ However, as discussed before, by the beginning of the sixteenth century these explanations began to be questioned as a result of the increasing practice of astrology in the Southern Hemisphere, where the seasons are inverted and the winds are different.

It is not clear if Delgado, Dias and Fallon were particularly concerned with the validity of the essential dignities in the southern latitudes; they were certainly aware of Cardano's suggestion of inversion of the rulerships as they were familiar with his work (see Chapter 9), but, as with many other astrology textbooks, there is no direct reference to this debate.⁵⁷⁹ In fact, they do not go into much detail regarding the explanation of the rationale behind the dignities. Delgado expands a bit more on this matter and presents several natural concepts surrounding the essential dignities but does not go too much into Ptolemy's seasonal explanation, choosing instead to focus on the natural affinity of the planet's qualities and operations with the nature of the sign. This natural validation of the dignities is also based on the relationship between the houses and exaltations of planets, their aspects, movements and their natural placement in celestial spheres.⁵⁸⁰ The emphasis on these natural traits suggests that he was aware of the debate regarding the southern hemisphere and tried to circumvent it, even if only partially, by providing additional arguments. Dias's discourse is similar to Delgado's though much more concise and less detailed. He does not discuss Ptolemy's seasonal explanation, except in some instances when explaining the exaltations. Fallon, as usual, is the most succinct of the three, not engaging in any explanation, simply listing the dignities and their effects on the planets.

The following dignity is that of triplicity. As the name suggests this dignity is connected with the elemental triplicities of the zodiac which are composed of three signs for each element. All authors offer a detailed explanation of the triplicities because of its practical implications. First, because this dignity is related to the very structure of the zodiac. Secondly, because they are a cornerstone of Ptolemaic doctrine in which the triplicities are related to the directions of

⁵⁷⁸ Ptolemy's explanation of the houses and exaltations of the planets can be found in *Tetrabiblos* I.17 and I.19.

⁵⁷⁹ As seen in Cardano, *In Cl. Ptolomae de astrorum iudiciis aut (ut vulgo appellant) Quadripartitae constructiones Lib. IIII commentaria ab autore postremum castigata, & locupletata*, 185.

⁵⁸⁰ The chief example of this form of natural reasoning is the distribution of the houses of the planets whose sequence is reflecting the order of the spheres and the maximum elongation of Venus and Mercury: departing from the positions of the Sun and the Moon which are attributed to Leo and Cancer for their fiery and watery qualities, the other planets are distributed according to their distance from the centre of the World in the geocentric model. Saturn, the furthestmost planet is placed in the two most distant signs from the luminaries' houses, then Jupiter, Mars, Venus and Mercury. In this scheme the two latter are as distant from the two luminaries the same number of signs that they can be from the Sun, two for Venus, and one for Mercury. A similar logic occurs in the distribution of the exaltations of the planets, although it is much less obvious and not the main focus of the distribution: for example, the Sun is again opposing Saturn the furthest planet; the Moon being the other luminary is on the sign following the Sun, where it would be visible as if it came out of a New Moon.

space, the winds, and to geographical astrological attributions. Delgado presents a very thorough explanation of the triplicity system, where not only he reviews the elemental division of the zodiac, but also provides an explanation of the affinity of the planets with the elements, with certain directions of space, and consequently with the generation of winds. Dias is not as exhaustive and chooses to discuss the triplicities in the section on the zodiac and does not provide a table with the planetary rulers of the triplicities. Fallon explains the triplicities and their effects on winds in the earlier version of his lessons but offers only a list in the later text.

Regarding the planetary associations to each triplicity, all authors follow the Ptolemaic doctrine which assigns two planetary rulers for each triplicity, one operating in the day, known as the diurnal ruler, and another operating during the night, the nocturnal ruler. In all lists provided by the authors the fire triplicity is ruled by the Sun by day and Jupiter by night, the air is assigned to Saturn by day and Mercury by night, and the earth triplicity is given to Venus by day and Moon by night. However, the attribution of rulers for the water triplicity presents some slight variations. Delgado gives the rulers as being Mars by day with Venus, and Moon by night. Fallon gives the same set of rulers in his earlier text, but only lists Mars by day and Moon by night in the table of the latter version, and in the overall table of dignities that he presents at the end of the chapter he lists Mars as both day and night ruler of the Water triplicity. This variation is not uncommon, and it is seen in other coeval authors. It results from Ptolemy's ambiguous description of the rulers of the water triplicity in *Tetrabiblos* I.18, where it is not entirely clear if Mars it to rule in both day and night, having the co-rulership of Venus by day and that of the Moon by night.⁵⁸¹

The essential dignity of triplicity endured a great change during the sixteenth and seventeenth centuries. The tradition of three triplicity planetary rulers was since the Classical period the conventional definition, being followed by almost all practitioners until the early modern period. In it each of the triplicities is governed by three planets, one being the ruler by day, the other by night, and the third being the participant, co-ruling with the other two.⁵⁸² This definition fell out of favour due to revisionism and the anti-Arabic trend and was rapidly

⁵⁸¹ 'The fourth triangle, which is the one drawn through Cancer, Scorpio, and Pisces, was left to the only remaining planet, Mars, which is related to it through his house, Scorpio; and along with him, on account of the sect and the femininity of the signs, the moon by night and Venus by day are co-rulers' (*Tetrabiblos* I.18.)

⁵⁸² In this definition the fire triplicity would be ruled by Sun (day), Jupiter (night), and Saturn (participant), earth by Venus (day), Moon (night) and Mars (participant), air by Saturn (day), Mercury (night), Jupiter (participant), and water by Venus (day), Mars (night) and Moon (participant). An attentive reading of Ptolemy's description shows that he keeps most of this arrangement, however he makes some additional considerations regarding winds, changes the emphasis from one planet to another, and does not list clearly each planetary association, making his exposition of the doctrine less clear.

replaced by Ptolemy's version which became the mainstream doctrine, adopted by the vast majority of authors of the late sixteenth and seventeenth centuries. As the Ptolemaic triplicities only consider two planetary rulers, the diurnal and the nocturnal, its widespread adoption incurred significant changes in the astrological practice. Consequently, several methods of astrological judgements and forecasting based in this three triplicity ruler system were eventually discarded, producing a loss in the traditional doctrine.⁵⁸³ As referred in Chapter 1, this and other similar changes, such as that of the terms (discussed below), further promoted a change in the process of judgement which became considerably constrained to the set of techniques mentioned by Ptolemy in the *Tetrabiblos*. Any other methodologies that, despite being until then a standard astrological practice, became suspicious or even considered unsound or irrational. This new approach to astrology was developed throughout the sixteenth century in the works of Girolamo Cardano, Francesco Giuntini, and many others.⁵⁸⁴

Following this revisionist trend, Delgado ends his exposition of the essential dignities at this point, as he considers the others to be foolish and vain, and they were clearly outside his vision of a natural practical astrology, one he apparently shares with Cardano:⁵⁸⁵

The other dignities of the planets such as terms, faces and similar, needed together with the planetary hours that the Arabs invented for the most vain and highly uncertain judgements of their interrogations and some elections of no consequence. We have determined to leave them out, because, beyond what we said already, they have no use other than to confuse; we do it more easily, since our opinion is the same as that of Girolamo Cardano in his discourse in the supplement to his almanac.⁵⁸⁶

Dias and Fallon proceed with the exposition of the remainder dignities, the first of which is the terms. These are unequal divisions of the signs in five parts, each ruled by one of the five planets: Mercury, Venus, Mars, Jupiter and Saturn. The Sun and Moon are not assigned to the terms because they are considered to rule each one half of the zodiac (the solar and lunar signs mentioned above). Both the division in five parts and the sequence of planetary rulers are

⁵⁸³ While there are several studies of the discussions of the adoption of Ptolemaic terms (see below), there is no research made on the change of triplicity system and its impact on the astrological practice. Although this topic is too extensive to address here, a brief comparison between Medieval Arabic and Latin Early modern texts, reveals a different use of the triplicities in the methods of astrological judgement; many of which are lacking in the Latin texts that adopt the Ptolemaic system.

⁵⁸⁴ Some of these changes are debated in Hasse, 'Astrology: Ptolemy against the Arabs'; and in Faracovi, 'The Return to Ptolemy'.

⁵⁸⁵ Here Delgado is making a reference to Gerolamo Cardano, *Libelli duo: De Supplemento Almanach; De Restitutione temporum et motuum coelestium; Item Geniturae LXVII insignes casibus et fortuna, cum expositione* (Nuremberg: Iohan. Petreium, 1543).

⁵⁸⁶ Outras dignidades dos planetas como términos, fâcies e semelhantes, necessárias com as horas planetárias que os Arabes inventarão para os juízos vaníssimos, e insertíssimos de suas interrogações, e algumas eleições de nenhum momento determinando de as deixar porque além do que dissemos não servem mais que de confusão fazemo-lo mais facilmente achando do nosso mesmo parecer a Jerónimo Cardano na peroração do suplemento do almanach (Delgado, tr.1, ch.4).

different for each sign. In astrological practice two different tables of terms have been in use: the so-called Egyptian table (or Egyptian terms), and Ptolemy's table (or Ptolemaic terms). Since late antiquity practitioners have debated which of them is the best table to use, with the vast majority of astrologers favouring the Egyptian terms; before the sixteenth century very few used the Ptolemaic terms. These have always presented a problem because, unlike the Egyptian version, there was never a unique table of Ptolemy's terms, but several versions with significant variations.⁵⁸⁷ The supremacy of the Egyptian terms changed through the sixteenth and seventeenth century as the anti-Arabic current and the growing favouring of Greek traditions lead to the adoption of the Ptolemaic terms.

Table II.9 – The Ptolemaic Terms according to Dias and Fallon

♈	Aries	♈	6°	♀	8°	♂	7°	♂	5°	♂	4°
♉	Taurus	♀	8°	♂	7°	♈	7°	♂	4°	♂	4°
♊	Gemini	♂	7°	♈	7°	♀	7°	♂	4°	♂	5°
♋	Cancer	♂	6°	♈	7°	♂	7°	♀	7°	♂	3°
♌	Leo	♂	6°	♂	7°	♀	6°	♈	6°	♂	3°
♍	Virgo	♂	7°	♀	6°	♈	5°	♂	6°	♂	6°
♎	Libra	♂	6°	♀	5°	♈	8°	♂	5°	♂	6°
♏	Scorpio	♂	6°	♈	8°	♀	7°	♂	6°	♂	3°
♐	Sagittarius	♈	8°	♀	6°	♂	5°	♂	6°	♂	5°
♑	Capricorn	♀	6°	♂	6°	♈	7°	♂	6°	♂	5°
♒	Aquarius	♂	6°	♂	6°	♀	8°	♈	5°	♂	5°
♓	Pisces	♀	8°	♈	6°	♂	6°	♂	6°	♂	4°

Table II.10 – The Egyptian Terms

♈	Aries	♈	6°	♀	6°	♂	8°	♂	5°	♂	5°
♉	Taurus	♀	8°	♂	6°	♈	8°	♂	5°	♂	3°
♊	Gemini	♂	6°	♈	6°	♀	5°	♂	7°	♂	6°
♋	Cancer	♂	7°	♀	6°	♂	6°	♈	7°	♂	4°
♌	Leo	♈	6°	♀	5°	♂	7°	♂	6°	♂	6°
♍	Virgo	♀	7°	♀	10°	♈	4°	♂	7°	♂	2°
♎	Libra	♂	6°	♂	8°	♈	7°	♀	7°	♂	2°
♏	Scorpio	♂	7°	♀	4°	♂	8°	♈	5°	♂	6°
♐	Sagittarius	♈	12°	♀	5°	♂	4°	♂	5°	♂	4°
♑	Capricorn	♀	7°	♈	7°	♀	8°	♂	4°	♂	4°
♒	Aquarius	♂	7°	♀	6°	♈	7°	♂	5°	♂	5°
♓	Pisces	♀	12°	♈	4°	♂	3°	♂	9°	♂	2°

⁵⁸⁷ For a discussion of the tables of terms and their transmission see Houlding, 'The Winding Courses of the Stars'; Heilen, 'Ptolemy's Doctrine of the Terms and Its Reception'; Alexander Jones and John Steele, 'A New Discovery of a Component of Greek Astrology in Babylonian Tablets: The "Terms"', *ISAW Papers*, no. 1 (2011), <http://dlib.nyu.edu/awdl/isaw/isaw-papers/1/>; Cristian Tolsa, 'The Table of Ptolemy's Terms (Tetr. 1.21)', *Philologus* 162, no. 2 (2018): 247–64.

The Jesuit authors reflect this shift quite well. Delgado's is the most extreme position, leaving them aside, but Dias presents a standard Ptolemaic table of terms which he declares to be the most followed; nevertheless, he calls the attention of the student to the existence of the Egyptian table which can be consulted in Magini's ephemeris. Fallon is an interesting case, as he shifts his opinion during the course of his teaching years. In his first text he presents the Egyptian table as the most common, again referring the student to Magini for Ptolemy's table, but a decade later, in the second version of his text, he favours the Ptolemaic table instead. Mindful of this change of heart, and of the practical implications of his choice, he is compelled to offer an explanation:

In the assignment of these terms there is great variety. The moderns commonly follow the Egyptians, whose table one day I esteemed; however, at present I believe it to be more correct to adhere to Ptolemy whose table is the following.⁵⁸⁸

His reference to the use of the Egyptian terms by the 'moderns' is quite interesting, as this may imply that by the late 20s and early 30s of the seventeenth century there was a change in opinion regarding the terms, and the Egyptian table regained favour among practitioners.

The last dignity, the fifth, presented by Dias and Fallon is the faces of the planets. They simply provide a table without further discussion. Although not mentioned in Ptolemy's text, this minor dignity was nonetheless a time-honoured element of the astrological doctrine.

Table II.II – The faces

Sign	First (0°–10°)	Second (10°–20°)	Third (20°–30°)
♈ Aries	♂ Mars	☉ Sun	♀ Venus
♉ Taurus	♀ Mercury	☾ Moon	♄ Saturn
♊ Gemini	♃ Jupiter	♂ Mars	☉ Sun
♋ Cancer	♀ Venus	♀ Mercury	☾ Moon
♌ Leo	♄ Saturn	♃ Jupiter	♂ Mars
♍ Virgo	☉ Sun	♀ Venus	♀ Mercury
♎ Libra	☾ Moon	♄ Saturn	♃ Jupiter
♏ Scorpio	♂ Mars	☉ Sun	♀ Venus
♐ Sagittarius	♀ Mercury	☾ Moon	♄ Saturn
♑ Capricorn	♃ Jupiter	♂ Mars	☉ Sun
♒ Aquarius	♀ Venus	♀ Mercury	☾ Moon
♓ Pisces	♄ Saturn	♃ Jupiter	♂ Mars

⁵⁸⁸ No assignar destes termos há grandes variedade; os modernos comumente seguem aos Egípcios cuja taboada eu algum dia estimei; porém ao presente julgo ser mais acertado encostar-nos a Ptolomeu, cuja tabuada é esta (Fallon, tr.1, ch.2).

Sometimes it is also referred to as decans since it results from the division of the signs into three equal parts of ten degrees (a decan).⁵⁸⁹ Each of these segments is ruled by a planet beginning with Mars for the first face of Aries and following the descending order of the celestial spheres.

All three authors make note of the weighing system for the essential dignities which attributes a score to each of them. Hence, in an astrological figure, a planet positioned in a sign of its house would be granted five dignities, or ‘carats’ as the authors name them. The exaltation would award a planet four ‘carats’, the triplicity would yield three, the term, two, and the face, one. Correspondingly, a planet in a sign of its exile would suffer five points or ‘carats’ of debility, and a planet in its fall, a debility of four; these would be subtracted from the planet’s dignity score. Delgado and Fallon also mention that if a planet has no dignity in its zodiacal position it is called peregrine and receives five points of debility.

Table II.12 – Scoring system for essential dignities & debilities

Dignity		Debility	
Domicile, house or throne	5	Exile or detriment	5
Exaltation	4	Fall	4
Triplicity	3		
Term	2	Peregrine	5
Face	1		

Since they are following Ptolemy or at least a Ptolemaic approach in their exposition of the doctrine, all authors comment, although dismissively, on two other minor dignities of the planets which are mentioned in the *Tetrabiblos*.⁵⁹⁰ The first is what Ptolemy calls the ‘chariots’, which occurs when a planet has more than one dignity in the zodiacal position it occupies; for example, in the sign of Scorpio, Mars has both house and triplicity. The authors dismiss it as a composite dignity rather than a dignity in itself and as an unnecessary concept. The other, which they also considered pointless, is the almugea, called ‘proper face’ by Ptolemy, and to which the authors refer also as ‘pessoa’.⁵⁹¹

⁵⁸⁹ It must be noted that the term ‘decan’ (also called *adoragen*) is sometimes used for a similar system of dignities in the Indian astrological tradition. This dignity also attributes a planetary ruler to each ten degrees of the signs but following a different sequence. There is no reference to this system in the Jesuit texts. For a definition of this dignity see Bīrūnī, *The Book of Instruction in the Elements of the Art of Astrology*, 263; Shlomo Sela, *Abraham Ibn Ezra: The Book of Reasons. A Parallel Hebrew-English Critical Edition of the Two Versions of the Text* (Brill, 2007), 47.

⁵⁹⁰ See *Tetrabiblos* I.23

⁵⁹¹ The almugea occurs when a planet is distant from the Sun, or from the Moon, the same number of signs that his sign of domicile is from Leo (the house of the Sun) or from Cancer (the house of the Moon) in the scheme of the planetary houses. The Portuguese term ‘pessoa’, which translates as ‘person’ comes from the Latin for the almugea: ‘persona Solis’.

Table 11.13 – Essential dignities discussed by each author (in order of presentation)

Delgado	Dias	Fallon 1	Fallon 2
House or domicile	House or domicile	House or domicile	House or domicile
Exaltation	Exaltation	Exaltation	Exaltation
Triplicity	Triplicity	Triplicity	Triplicity
	Term (Ptolemaic)	Term (Egyptian)	Term (Ptolemaic)
	Face	Face	Face
Chariot	Chariot	Chariot	Chariot
Almugea	Almugea	Almugea	Almugea

The accidental dignities

Next comes the discussion of the accidental dignities of the planets, which are derived from the various cycles and particularities of their movements, commonly known in this period as ‘the passions of the planets.’ In an astronomical text this implies the explanation and calculation of planetary movements, while in an astrological context this entails their interpretation. In this matter authors follow different approaches and there are some differences in the type of accidental dignities presented, but also in the order by which they are introduced to the student.

The aspects of the planets are undoubtedly the topic to which all authors pay more attention, and in most of the cases, is the first item to be addressed (the only exception is Fallon’s second text). This is no surprise as the aspects are not only a fundamental part of the interpretation process describing the interactions of the planets in the astrological figure, but they are also used to describe the movement of the planets in relation to each other, being mentioned in almost all books of astronomy, even those not addressing astrological topics. In practice, the aspects are angular relations between the planets, as seen from a geocentric perspective; their nature and qualities are mostly defined by the geometry of the zodiac and its elemental distribution. The astrological tradition recognizes five types of aspect: the conjunction which links planets in the same sign or in near degrees, and represents an angular distance of 0°; the opposition which connects opposing signs, and implies an angle of 180°; the trine which connects signs of the same element at a distance of 120°; the square that associates signs of opposing qualities (hot and cold) at 90°; and sextile which bound signs of equal qualities (hot with hot, or cold with cold), 60° apart. The trine and the sextile are considered to facilitate the planetary combination, while the square and the opposition are considered difficulties or obstructions; the conjunction, the strongest of the aspects, is reckoned neutral as it depends on the planets involved.

Delgado is quite systematic in his description of the aspects, offering several other concepts beyond their simple definition. He briefly mentions the dexter and sinister aspects, that is those made to the right or left of the planet, respectively, and applied only to the trine, square and sextile. Afterwards he speaks of the exact or partile aspects (that is, those at the exact degree distance) and inexact or platic aspects (those within close range of the exact angle). In this context he presents the concept of orb, a number of degrees before and after the planet within which the aspect is still considered to be effective. This is seen as a sphere of influence surrounding the planet that Delgado defines as ‘spaces where the planets reach not only with their rays and visible light, but also with their occult virtue.’⁵⁹² He presents the values of these orbs, which are given as the ray of the entire sphere, and discusses some slight variances in their sizing according to different authors, namely Haly Abenrudian (i.e. Alī ibn Riḍwān) and Nabot, noting that Ptolemy does not mention the orbs in his text.⁵⁹³ He then explains the difference between applying aspects, those that, since they are within the orb, are still approaching exactness, and separating aspects, those that are moving away from the exact degree of their angle, but still within the limits of the orb of the planets involved. He finishes his exposition of the aspects, explaining in more detail their nature; he also discusses the lack of other aspects in astrology by arguments of geometrical and musical consonance and dissonance.⁵⁹⁴

Dias also dedicates several paragraphs to the aspects although he is not as technical as Delgado and focuses only on the main concepts. His text first explains how the qualities of the planets are mixed through their aspects and defines the five classical aspects. Then it continues with the concepts of partile and platic aspects, and orb, which differently from Delgado he only notes as being a separation of five degrees. He finishes the text with a detailed description of the qualities of each aspect, and opinions as to their relative strength. Fallon follows closely Delgado’s exposition of the aspects in both texts, dividing their explanation between the section on the zodiac and that on accidental dignities. In his earlier text the aspects are discussed first, but in the latter, he presents them last.

⁵⁹² espaços onde os planetas chegam não somente com os seus raios e lume manifesto mas também ainda com sua virtude oculta

⁵⁹³ Delgado’s values for the orbs are: Saturn 10°, Jupiter 12°, Mars 7°30′, Sun 17°, Venus 8°, Mercury 7°, Moon 12°30′. He also mentions the traditional system: Saturn 9°, Jupiter 9°, Mars 8°, Sun 15°, Venus 7°, Mercury 7°, Moon 12°.

⁵⁹⁴ He is referring to the so-called inconjunctions which are the distances of 30° (semi-sextile) and the 150° (quincunx), and other angles such as the 45° and 135° which derive from the division in eight.

Table II.14 – The aspects and their qualities

Aspect	Degrees	Distance in signs	Quality
♌ Conjunction	0°	0	Neutral
♌ Opposition	180°	6	Conflict
△ Trine	120°	4	Harmony
□ Square	90°	3	Moderate conflict
* Sextile	60°	2	Moderate harmony

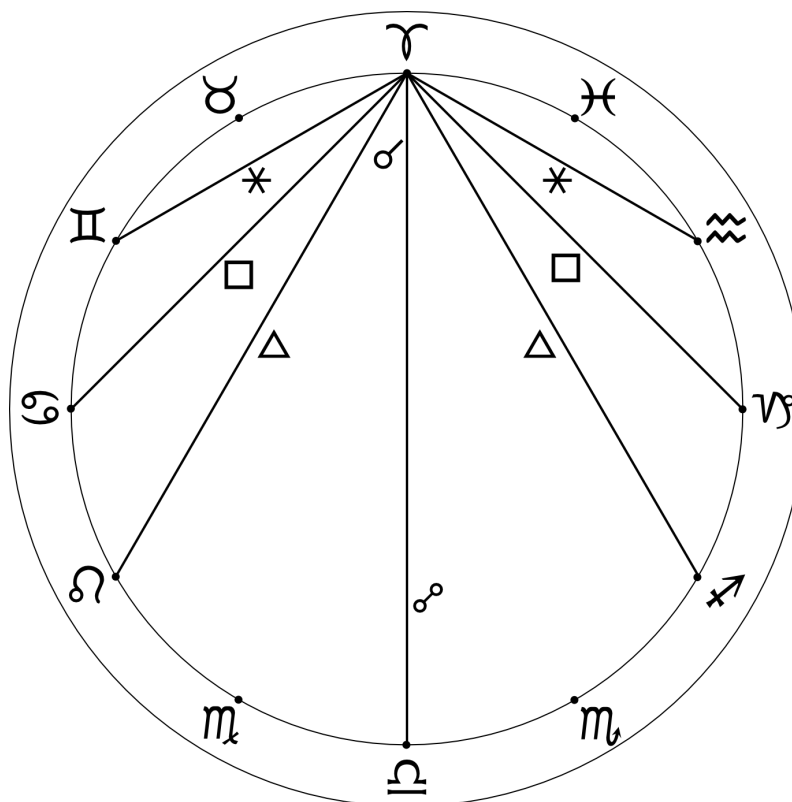


Figure II.2 – Diagram of the five traditional aspects as given by Fallon in his second text.

Using as an example the sign of Aries (♈), a planet in that position would form an opposition (♌) to Libra (♎); a sextile (*) to Gemini (♊) and to Aquarius (♒), a square (□) to Cancer (♋) and Capricorn (♑), a trine (△) to Leo (♌) and Sagittarius (♐). The sinister or left aspects would be those to Gemini, Cancer and Leo, and the dexter of right would be those to Aquarius, Capricorn and Sagittarius.

Having explained the aspects, the authors address the other dignities. Delgado succinctly defines other accidental conditions of the planets, but without offering a detailed explanation for their rationale as he did with the aspects.⁵⁹⁵

⁵⁹⁵ This detail is provided in the last part of the astronomical section of the course on the passions of the planets, taught after the theories of the planets (BPMP Ms. 644 fol. 209r-232v.)

He begins by addressing the various conditions derived from the relationship of the planets to the Sun. The first set has to do with proximity: the extreme closeness of a planet to the Sun is the debility named combustion, which implies less than eight degrees (half of the Sun's orb) from the Sun's position; if the planet is beyond this distance but still close to the Sun, less 17° (the Sun's orb), it is a little less damaging and it is called being in the beams of the Sun; the corresponding dignity is being free from the beams of the Sun, that is more than 17° apart.⁵⁹⁶ Then he addresses the position of the planets in relation to the Sun. Thus, the Moon is stronger when increasing in light, the superior planets by being oriental to the Sun (rising before the Sun), and the inferior by being occidental (setting after the Sun); on the contrary, the Moon decreasing in light, the occidental position of the superior planets, and the oriental placing of the inferior, are considered debilities.⁵⁹⁷ Delgado then lists the accidental conditions related to the movement of the planets: the dignity of direct motion and its opposite, the retrograde motion; and the speed of the planet, fast which is considered strong, and slow, a weakened state. As last he refers mutual reception, that is when one planet is placed in the sign of dignity of another (house or exaltation), and this other planet in a sign of dignity of the former; this condition strengthens the planet.⁵⁹⁸

Dias, after finishing the aspects, moves on to what he numbers as the second, third, fourth and fifth accidental dignities. The second is the elevation of the planet, to which he gives three definitions: elevation by latitude, that is the greater or lesser separation the planet has from the ecliptic towards the north; elevation in the epicycle, that is when the planet is near its apogee; or elevation within the celestial houses, that is when the planet is near its daily culmination point, in the tenth house, or near it. The third dignity is the oriental and occidental state of the planets, discussed in a similar fashion to Delgado. The fourth and fifth are dedicated to the conformity of sect and gender, presenting an extended explanation of these concepts. The accidental dignity states that a diurnal planet will be at its strongest when placed in the diurnal half of an astrological figure, and conversely, a nocturnal planet would be better placed in a

⁵⁹⁶ He makes no reference to the extreme proximity to the Sun, called 'cazimi', in the heart of the Sun, commonly defined as a planet being less than 17 or 16 minutes of degree from the Sun, or in older texts in the same degree as the Sun. See for example, Bīrūnī, *The Book of Instruction in the Elements of the Art of Astrology*, 496.

⁵⁹⁷ The superior planets, Saturn, Jupiter and Mars are best when oriental, appearing before the day because of their masculine qualities, while the inferior, Venus and Mercury are taken as more comfortable when in occidental, announcing the night. The Moon, being an inferior planet, is at its best when occidental, that is crescent, and weaker when oriental and waxing.

⁵⁹⁸ Although it is common for authors to list it as an accidental dignity this condition is directly related to the essential dignities.

nocturnal condition.⁵⁹⁹ As to gender, a masculine planet will be stronger in a masculine sign and a feminine planet in a feminine sign.

Fallon dedicates several paragraphs to the general theory of planetary motion and presents the different accidental conditions associated with it: elevation, direct or retrograde motion, speed, and oriental or occidental setting. In his earlier version at the conclusion of the chapter, he lists several other accidental conditions: convenience of nature, combustion and mutual reception; adding others related to the aspects such as void of course, feral, fortunate or unfortunate, and besiegement.⁶⁰⁰

In a similar fashion to the score system of the essential dignities, an equivalent evaluation method is offered to grade the various accidental dignities. Delgado offers a system of points for each dignity he presents in his lessons. Fallon follows Delgado in his first text but only presents the scores for the aspects;⁶⁰¹ in the second text he offers a simpler system (see table).

Table 11.15 – Accidental dignities discussed by each author (in order of presentation)

Delgado	Dias	Fallon (text 1)	Fallon (text 2)
Aspects	Aspects	Aspects	Direct or retrograde
Combustion	Elevation (by latitude)	Auge	Slow or fast
Under the rays of the Sun	Elevation (by auge)	Direct or retrograde	Aspects
Free from the rays	Elevation (by house)	Fast or slow	
Moon increasing or decreasing in light	Oriental or occidental	Oriental and occidental	
Oriental or occidental	Convenience of nature: sect and gender	Convenience of nature	
Direct or retrograde		Combustion	
Fast or slow		Mutual reception	
Mutual reception		Besiegement	
		Void of course	
		Feral	
		Fortunate or unfortunate	

⁵⁹⁹ This implies that the diurnal planets, the Sun, Jupiter and Saturn are better positioned above the horizon in a daytime astrological figure or below it in nighttime figure. The nocturnal planets, the Moon, Venus, and Mars are strengthened if below the horizon in a daytime astrological figure or above it in a nighttime figure. Following Magini, Dias states that Mercury is considered as a diurnal planet when it has a diurnal rising (rises before the Sun) and nocturnal when it has a nocturnal setting (sets after the Sun).

⁶⁰⁰ A planet is considered void of course when it does not form an applicative aspect to another planet, while feral is a planet with no aspects of any kind (separative or applicative). A fortunate planet is one that has a conjunction, trine or sextile with a beneficial planet, Jupiter or Venus; an unfortunate planet is one with a conjunction, opposition or square to a malefic planet, Saturn or Mars. A besieged planet is a similar condition to the latter but one in which the planet separates from a square of opposition to one of the malefic planets and applies to a square of opposition to the other malefic planet.

⁶⁰¹ A similarly complex system is presented by Origanus in his *De Effectibus* – David Origanus, *Ephemerides Novae Annorum XXXVI, Incipientes Ab Anno Chrisogoneiois 1595, Quo Ioannis Stadii Maxime Aberrare Incipiunt, & Desinentes in Annum 1630* (Frankfurt (Oder): Andreae Eichornii, 1599), 267–70.

Table 11.16 – Delgado and Fallon’s scoring system for accidental dignities and debilities

Delgado				Fallon (text 2)	
Dignity		Debility		Dignity	Debility
♄ ♂ ♀	5	♃ ♂ ♂ ♂ ♂ ♂	5	♄ ♂ ♀	5
♄ ♂ ☉, ♀, ♀	4	♄ □ ♂ ♂ □ ♂ ☉ ♂ ♀	4	♄ ♂ ☉, ♀, ♀ ♀ ♂ ☉, ♀, ♀	4
♄ ♂ ♀	3	☉ ♂ ♀ ☉ □ ♃, ♂, ♀	3		
♄ * ♀ ♄ △ ☉, ♀, ♀ ♀ △ ☉, ♀					
♄ * ☉, ♀, ♀ ♀ * ☉, ♀, ♀ ♀ △ ♀ ♃ △ ♀ ♀ △ ♀	2	♃ □ ♀ [♂] □ ♀ or ☉ ⁶⁰² [♃ □ ♀ or ☉] ♃ ♂ ♂, ♀ ♂ ♂ ♀	2		
♄ ♂ ♃, ♂ ♂ ♂ ♀ ♀ * ♀ ♄ △ ♃, ♂ ♂ △ ♀ ♀ △ ♀	1	♃ ♂ ♀, ♀ ♂ ♂ ♀ ♂ □ ♀	1		
♂ Regulus	6	♂ Algol	5		
♂ Spica	5				
Free from ☉ beams	5	Combustion Under ☉ beams	5 4		
♃, ♄, ♂ Oriental ♀, ♀ Occidental ♂ waxing	2	♃, ♄, ♂ Occidental ♀, ♀ Oriental ♂ waning	2		
Direct	4	Retrograde	4	Direct	4
Fast	2	Slow	2	Fast	2
Mutual Reception: House	5				
Exaltation	4				

Dias apparently does not present the scoring of the accidental dignities in his text, but in the second treatise he refers to a table that it is not in any of the existing copies, likely a similar version of this scoring. However, the text gives an idea of the accidental dignities he would have considered in his scoring and which are close to that of the other authors:

And it should also [be considered] the accidental of position of house where it placed according to the tables of the first treatise, chapter six, the good or bad aspects of malevolent or benevolent planets, if direct, if retrograde, if fast or slow, if oriental or occidental, if combust or free from the beams, etc.⁶⁰³

⁶⁰² The texts states ‘the \square ... of the \odot with ♂ ’ which is an astronomical impossibility since Mercury can only be distant from the Sun by 28° . This is likely an error of copy in both manuscripts. Following Origano, this scoring would be given to a Mars or Saturn square to the Sun or Mercury – Origanus, 270.

⁶⁰³ E também segundo os accidentais da valia da casa, onde esta conforme as távoas do primeiro tratado, capítulo 6, os aspectos bons, ou maos, de planetas malévolos ou benévolos, se directo, se retrógrado, se veloz ou tardo, se oriental ou occidental, se combusto, ou fora dos raios. etc. (Dias, tr.3, ch.6).

This systematic numerical evaluation of the conditions of the planets is part of the process of mathematization of astrology as was addressed in Part One. In the medieval tradition this type of scoring was only applied to the essential dignities. Accidental dignities were considered in judgement, but no numerical value was attributed to them. Sometime between the fifteenth and the sixteenth centuries a new system of scoring was created to accommodate also the accidental dignities and corresponding debilities. Although there was a broad consensus, the values and dignities considered presented slight differences in each author.⁶⁰⁴ These differences can be observed in Delgado and Fallon, both regarding their choice of dignities and in the scoring system: while Delgado scores all the dignities he presents, Fallon selects only the aspects, movement, and speed. There are also some differences in the scoring; for example, Delgado considers a retrograde planet to have four debilities, while Fallon attributes five to it.

The celestial houses

This is the last of the main topics addressed in the astrological principles. The houses are twelve sections of the celestial sphere calculated for a specific location: in the case of a nativity, the individual's place of birth, while for a season ingress or an eclipse, the city where it was observed or the capital of the kingdom. The entire celestial sphere, with the zodiac, the planets, and the fixed stars, travels through these twelve divisions, moving from East to West in the period of twenty-four hours. Based on the horizon and the meridian, the sphere is divided into four quadrants. These are defined by four major points: the rising East point, called the ascendant or horoscope; the culmination point at the meridian, the Mid-heaven; the setting West point, the descendent; and the anti-culmination point, named the lower angle or the angle of earth. These quadrants are in turn divided by three, resulting in the twelve houses. As mentioned before, there were several mathematical methods for making this division, but by the seventeenth century, the Rational Method, also known as the Regiomontanus division, was almost unanimously used.⁶⁰⁵ The house which begins at the East point, the ascendant or horoscope is the first house, the following house will be the second, and so on until the twelfth,

⁶⁰⁴ The history of this scoring system is still to be fully studied, but by the seventeenth century it was a standard accepted practice despite the existing differences.

⁶⁰⁵ On the house divisions in the Early Modern period, see North, *Horoscopes and History*, 158–63. As noted in the Part I, the other less frequently used methods in this period, are: the Prime Vertical Method, as called Campanus; the Standard System, also referred to as the Alcabitus division (rarely used by mid-sixteenth century); the Single Longitude Method, also referred to as Equal House division, used occasionally in publications due to its simplicity. Some of these are mentioned but not used by teachers of Santo Antão. By the end of the seventeenth century the Rational Method or Equatorial Method is quickly replaced by the Hour Line Method, commonly known as the Placidus division, being only mentioned by Luís Gonzaga in his notes on the houses (BA 46-VIII-22, fol. 75r).

which is the house immediately above the horizon. The most important houses are those called angular: the first which begins with the ascendant, the tenth which starts at the mid-heaven, the seventh which initiates at the descendant, and the fourth which opens with the angle of Earth. The following houses, the second, the fifth, the eighth and the eleventh are called succedent, and those that precede an angle – the twelfth, the third, the sixth and the ninth – are known as cadent houses. The beginning of each house, that is the degree of the ecliptic that marks its division, is called the cusp and it is considered the strongest and most important point of the house.

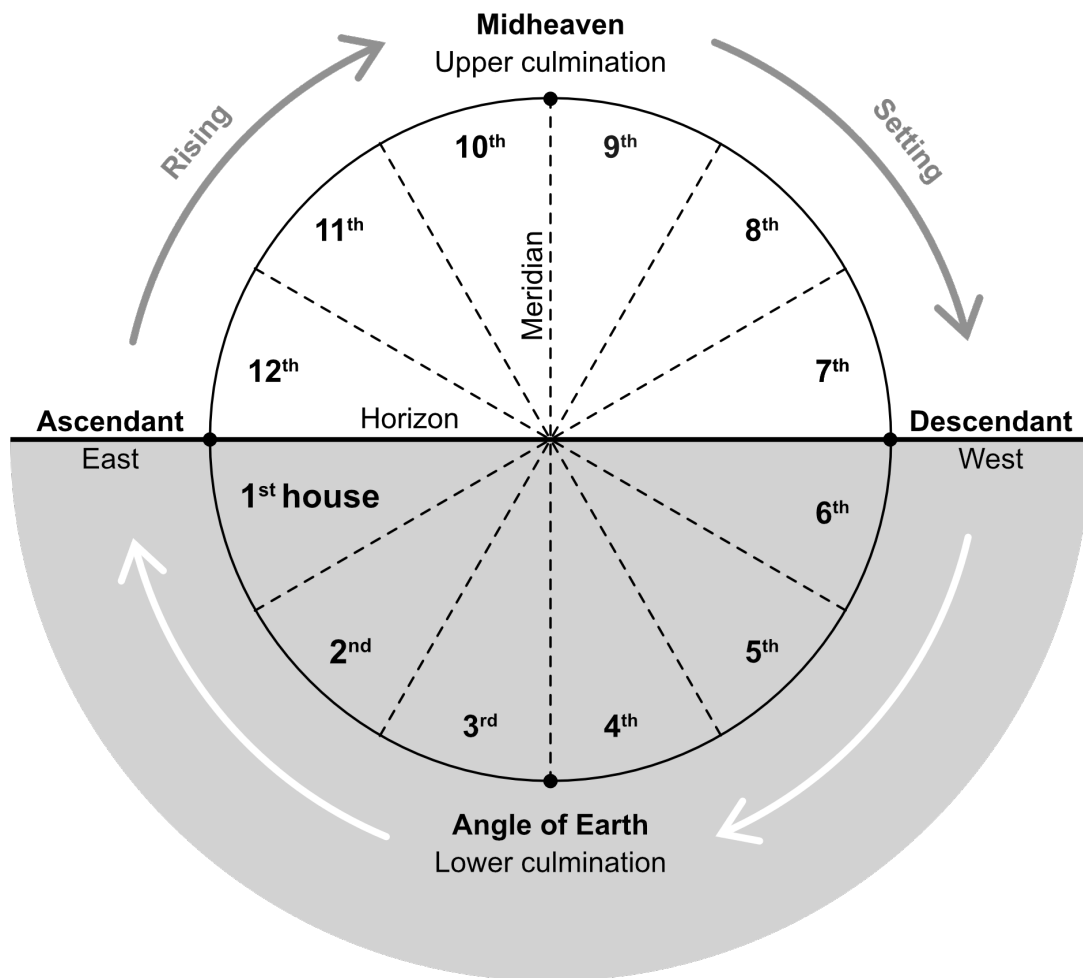


Figure II.3 – The houses as divisions of the celestial sphere.

In the premodern period the houses are usually represented as twelve triangular divisions in a square figure; circular figures are less frequent. In an astrological figure the positions of the planets and of each cusp are inscribed in these triangles, noting their zodiacal degree.

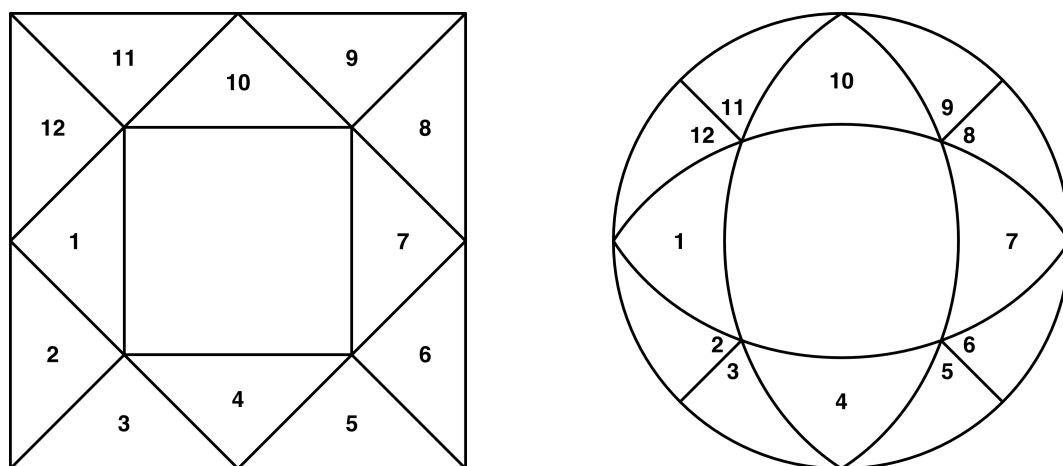


Figure 11.4 – Diagram of the celestial houses for the astrological figure or chart

Left: the more common square form. Right: a circular version.

The houses are extremely important as they form the basis of astrological interpretation. Although all planets and signs have their own individual attributes or natures, as seen before, it is their placement by house that gives them a specific function within the chart. Each house represents certain aspects of human life, the sign that is associated to the beginning of that house, the cusp, defines the qualities under which the activities represented by that house operate. The sign also establishes the planet which has domain over the activities of the house, this will be the planet which as domicile in that sign, called the lord of the house; for example, if a house cusp is in the sign of Libra, its ruling planet, Venus, will be the lord of that house.⁶⁰⁶ Additionally, if a planet is posited in a house it will also have signification in the activities of the house and will add in the activities of the houses it has lordship over. This makes the interpretation of an entire chart into an interweaving of different qualities, attributes and activities of the planets, based on their house position and house lordship.

The activities or meanings of each of the houses were for centuries centred on human affairs.⁶⁰⁷ However, by the seventeenth century the strictures of the Church regarding free will, restricted or prohibited most of the astrological judgements based on the houses. For example, one could not judge on the actions of a person's partners as those were the result of their free

⁶⁰⁶ These rules are usually addressed in larger and more advanced texts dealing with the methodologies of astrological judgement and not in the introductory books or sections.

⁶⁰⁷ Succinctly: the first house represented the individual's qualities and manners; the second house, his possessions; the third, brothers, relatives and short journeys; the fourth, the father, houses and lands; the fifth, children and amusements; the sixth, sickness and servants; the seventh, marriage, partnerships and opponents; the eighth, death; the ninth, piety, journey and knowledge; the tenth, honours and vocation; the eleventh, friends and allies; and the twelfth, enemies and prisons. A complete listing of the house's signification can be found in almost all astrological books.

will and thus could not be predicted through astrology. Additionally, certain meanings and signification of the houses could not be explained by any natural rationale, which further impelled a strong revision of the role of the houses in astrological judgement.⁶⁰⁸

This is the scenario in which the three authors address the celestial houses. Only the complete testimonies of Delgado and Fallon survive; the manuscript by Dias only has a short introductory paragraph after which the text stops with a note saying that ‘on this subject there was no more dictation.’⁶⁰⁹

Leaving aside the various opinions which deal with the division of the celestial houses among the ancients, there was agreement among them all that they should be twelve, and some took them through the zodiac others through the vertical circle, etc.⁶¹⁰

Delgado, as is his custom, discusses the natural effects of the houses, ratifying their importance before explaining their structure and attributes:

It cannot be denied that, by reason of the various places which the planets and stars successively reach above and below our hemisphere, there is in them a diverse manner of influence, with more or less efficacy in this inferior world. Insomuch as we manifestly experience that when the Sun rises or sets in the horizon, hitting us then with oblique rays, is less efficient than when it is perched high and placed in the meridian, and reaches us with much straight and perpendicular rays. This can also be seen in the mirrors or visual rays, because the same visible object, when taken from different places is represented in different ways and with lesser or greater knowledge. Although the places or locations that in the space of twenty-four hours, by means of the motion of the first mover, the planets and stars occupy in the heavens are almost infinite, nevertheless, with great art the astrologers chose twelve and named them Celestial Houses.⁶¹¹

In this opening statement he not only accepts and endorses the houses; he also offers an explanation for the different actions of the planets, relating them to a natural effect of the angle of incidence of their rays. This would account for the variations in the effects and strengths of the planets and stars as they travelled the skies following the diurnal motion.

⁶⁰⁸ This appears to be a phenomenon mostly affecting Christian countries, but a more thorough research must be undertaken. Unfortunately, there are no current studies on this and other shifts in astrological doctrine.

⁶⁰⁹ BL, Egerton MS 2630, fol. 58r.

⁶¹⁰ Deixando varias opiniões que avergua da repartição das casas celestes entre os antigos, ouve cousa certa foi para com todos serem 12, e posto que huns as tomavam pelo Zodíaco outros pelo círculo vertical, etc. (Dias, tr.1, ch.10)

⁶¹¹ Não se pode negar que por razão dos lugares diversos que os planetas e estrelas alcançam sucessivamente em cima do nosso hemisfério e de baixo do mesmo há nelles diverso modo de influir com mais ou com menos eficácia neste mundo inferior, porquanto manifestamente experimentamos que o ☉ quando nasce e se poem no horizonte ferindo-nos então com raios oblíquos, muito menos eficaz he que quando empinado mais e posto no sítio do meridiano nos alcança com raios mais direitos e mais chegados a perpendicular. Vê-se também isto nas espehis ou raios visuais porque o mesmo objecto visível, tomado de diversos lugares se representa em diversos modos com conhecimento maior e menor, e ainda que sejam quase infinitos os lugares ou sítios que em espaço de 24 horas, com o movimento do primeiro móvel os planetas e estrelas ocupão no ceo, todavia com grande arte os astrólogos escolherão 12 somente a que puseram nome Casas Celestes (Delgado, tr.1, ch.6).

Delgado then proceeds to define the houses and to discuss the four quadrants and their elemental qualities, as well as the planetary associations with the houses: the joys and the significators.⁶¹² He then addresses the relative strength each house bestows to the planet placed in it, discussing the angular as the strongest, followed by the succedent, and the weaker cadent houses. Delgado refines this topic further by comparing all twelve houses and presents a score system to evaluate the effect of each one on a planet.⁶¹³ This system, together with the planetary associations, is summarised in a table at the end of this section:

Table II.17 – The attributes of the twelve houses according to João Delgado

House		Joy	Significator	Dignity	Debility
Angular	1 st	☿ Mercury	♄ Saturn	5	Good
Succedent	2 nd		♃ Jupiter	3	Good
Cadent	3 rd	☾ The Moon	♂ Mars	1	Mediocre
Angular	4 th		☼ The Sun	4	Mediocre
Succedent	5 th	♀ Venus	♀ Venus	3	Mediocre
Cadent	6 th	♂ Mars	☿ Mercury		3 Bad
Angular	7 th		☾ The Moon	4	Good
Succedent	8 th		♄ Saturn		4 Bad
Cadent	9 th	☼ The Sun	♃ Jupiter	2	Mediocre
Angular	10 th		♂ Mars	5	Good
Succedent	11 th	♃ Jupiter	☼ The Sun	4	Mediocre
Cadent	12 th	♄ Saturn	♀ Venus		5 Bad

Before concluding the chapter, Delgado goes back to the natural discussion of the houses and expands his initial explanation, by debating some doubts on this topic:

Despite what we have said at the beginning of this chapter, the efficiencies and astrological meanings that authors give to the twelve celestial houses seem impossible. Firstly, Aristotle speaking of the causes of the heavens in this inferior world, states that the same thing, while it does not change its very nature, will always produce the same;

⁶¹² The planets are said to have their joy in the house that has greater affinity with the planet's nature. This system has its origin in the Classical tradition and generally speaking places the diurnal planets above the horizon, and the nocturnal planets below the horizon; Mercury being neutral is placed in the first house. Differently, the co-significators result from the superimposing of the order of the planetary spheres in the houses, starting with the highest sphere, that of Saturn and following the order and repeating it until all houses are associated with one of the planets: 1st to Saturn, 2nd to Jupiter, 3rd to Mars, 4th to the Sun, 5th to Venus, 6th to Mercury, 7th to the Moon, 8th to Saturn again, 9th to Jupiter, 10th to Mars, 11th to the Sun, and 12th to Venus. These planets are then used as universal significators in the judgement of subjects related to the houses. Delgado gives the example that Jupiter is the significator of the second house as he promises riches, which are that house's topic, but he states that this is 'as the Arabs would like', thus dismissing this signification of the house in his natural view of astrology. On this topic see Abū Ma'šār, *The Great Introduction to Astrology*, 1:687–95 (VI.26).

⁶¹³ This is the same scoring presented in *De Effectibus* – Origanus, *Ephemerides Novae Annorum XXXVI*, 270. Delgado also mentions an alternative score system for the houses presented by Zael (Sahl b. Bishr) but gives preference to the one he presents. According to Delgado this scoring attributes a sequence of points to the houses beginning in the first house which receives 12, the tenth, 11, the seventh, 10, the fourth, 9, the eleventh, 8, the fifth, 7, the ninth, 6, the third, 5, the eighth, 4, the second, 3, the third, 3, the twelfth, 2, and the sixth, 1. This type of scoring appears in Abraham Ibn Ezra's calculation of the lord of the figure, see Shlomo Sela, *Abraham Ibn Ezra on Nativities and Continuous Horoscopy* (Leiden: Brill, 2014), 101.

therefore, the same part of heavens remaining itself will cause the same effects, and yet the astrologers want that the same part of the heavens, while not changing its nature, may cause different or even the opposite effects; therefore, the doctrine of celestial houses is false.⁶¹⁴

The argument is that, since the heavens are movable, each section of the sky corresponding to a house would gradually move and acquire a new meaning without any change to its essence. Furthermore, the same section of the heaven which is in one location the eleventh house of friends would be in a different location the seventh house of enemies, which are contrary significations; this would invalidate the doctrine of the houses. Delgado begins to address this problem by mentioning some of the explanations proposed: that there would exist an immovable heaven that would account for the different qualities of the houses; or that there would be placed in certain parts of the heaven fixed angels that would account for the different qualities of each house. He considers both arguments unsound and presents what he considers to be the correct explanation, the different angles by which the rays of the planets touch the inferior world:

It is true that the same part of the movable sky (either star or planet) – be it of a hot nature such as the Sun, or cold, dry, moist, etc., such as [are] the other stars or planets – being for example in a place called A, related to certain dwellings by manner of its different way of casting its rays of light, and with them their distinct virtues, can in each place cause different and even contrary effects. And the same star concerning one same dwelling, placed in a different part of the heaven, called B, can by the same reason produce effects contrary to those that it caused when in place A. And thus, for example, Mars placed in the first house of some horizon, which in another corresponds to the sixth [house], or any other – while not changing its intrinsic being and its natural virtue – because of the straightness or obliquity of casting its rays in both horizons, will cause contrary effects.⁶¹⁵

⁶¹⁴ Não obstante o que dissemos no princípio deste capítulo, parece, todavia impossíveis as eficiencias e significados astrológicos que os autores dão às 12 casas celestes. Primeiramente Aristóteles falando das causalidades do ceo neste mundo inferior, traz esta sentença que a mesma cousa enquanto não mudar o ser que tem sempre produzirá o mesmo, logo a mesma parte do ceo enquanto for tal causará os mesmos efeitos, e todavia os astrólogos querem que não mudando o ser, a mesma parte do ceo cause efeitos diferentes e ainda contrários, logo he falsa a doutrina das casas celestes (Delgado, tr.1, ch.6).

⁶¹⁵ Seja logo a verdade esta que a mesma parte do ceo móvel (entendo a mesma estrela ou planeta) ou seja de natureza quente, como o ☉ ou fria, seca, húmida, etc., como as demais estrelas e planetas, estando no mesmo sítio chamado A, por exemplo, em respeito de diversas habitações por razão do modo diverso de lançar os seus raios da luz, e com eles a sua virtude destinta, especie em cada qual pode causar diversos efeitos e ainda contrários, e a mesma estrela em respeito de huma mesma habitação posta em outro sítio do ceo chamado B, pode pola mesma causa produzir efeitos contrários dos que causava posta no sítio A. E assi posto ☿ v.g. na 1.^a casa dalgum horizonte, o qual sitio em respeito de outro horizonte responde à 6.^a, ou qualquer outra, não mudando o seu ser intrínseco, e a sua virtude natural por razão somente da maior direitura ou obliquidade de lançar os seus raios em ambos os horizontes causará efeitos contrários (Delgado, tr.1, ch.6).

Once more the argumentation is supported by the doctrine of perspective in which the same ray can have different angles in relationship to different mirrors. Applying the same reasoning to the planets, Delgado continues:

In this manner the same planet that in one city is in the mid-heaven or tenth house and hits it perpendicularly, will cause a different effect in another or others that it hits obliquely at that very moment, and consequently with less effectiveness and action.⁶¹⁶

This explanation respects the premises of Aristotle, as it also justifies satisfactorily the different effects of the celestial houses. Yet, consolidating his rational approach to astrology and discarding any superstitious elements, Delgado cautions that these are but natural effects:

We speak of the true and natural effects of the celestial houses or of the planets placed in them in every kind of astronomical judgement; as to those other significations of friends, enemies, celebrations and prisons, we have some days ago presented them as frauds.⁶¹⁷

Later on, in the section on nativities he further reinforces his opinion, casting aside the majority of the traditional meanings of the houses, but now in the context of the birth chart where many of these significations could be applied:

Although Pontano in his second book, fourth chapter,⁶¹⁸ discourses learnedly and ingeniously about those meanings of the twelve houses, meaning those that are part of the natural and particular constitution of the human body, the others we boldly reject, either because they are difficult to reach by human understanding, or, to say the least, because they are completely impossible. In our opinion we think as Ciruelo, in the first book, second chapter, where he calls such meanings illusionary and imaginary things lacking any foundation.⁶¹⁹

Fallon's discussion of the houses is very similar, presenting the same arguments as Delgado regarding the natural operation of the houses. Likewise, he also discusses the quadrants, the relative strength of each house and the planetary associations. The main difference is that Fallon also includes in his lists the main traditional associations of the houses with human affairs that Delgado utterly rejects. However, Fallon makes no comment as to their use, maintaining a similar natural posture to that of Delgado. Being more prone to emphasize the technical and

⁶¹⁶ A este modo o mesmo planeta que a huma cidade está no meo ceo ou 10.^a casa, e a fere perpendicularmente causará diverso efeito que noutra ou noutras que fere no mesmo tempo obliquamente. E por conseguinte com menor eficácia e acção (Delgado, tr.1, ch.6).

⁶¹⁷ Falamos de efeitos verdadeiros e naturais das casas celestes ou dos planetas postos nelas, em qualquer género de juixos astronómicos que quando aqueloutros significados de amigos, de inimigos, alegrias, e carceres, dias há que os demos por patranhas (Delgado, tr.1, ch.6).

⁶¹⁸ Giovanni Pontano, *De rebus coelestibus* (Napoli: Sigismund Mayr, 1512).

⁶¹⁹ Item ainda que Pontano no 2.^o livro, capítulo. 4.^o douta e engenhosamente discorra acerca daqueles significados das 12 casas celestes (tirando os que pertencem à constituição natural e própria do corpo humano) os demais ousadamente rejeitamos, ou por serem difficilimos de alcançar ao humano entendimento ou pera melhor dizer por serem impossibilissimos. Do nosso parecer acho Ciruelo no primeiro libro capítulo 2.^o, onde chama aos tais significados, cousas meramente fantásticas e imaginações sem nenhum fundamento (Delgado, tr.3, introduction).

mathematical elements in his lessons, Fallon briefly addresses the different methods for the division of the houses in his second text. He presents this discussion at the beginning of the section where he discusses the calculation of the astrological figure.

The celestial figure

An important part of the introductory section was the calculation of the position of the celestial bodies. This is addressed in the calculation or erection of the celestial figure, the diagram of the main components for the astrological judgement: the celestial houses and the positions of the planets by house and sign. Delgado and Dias do not include a chapter on the calculation of the figure. It is possible that they had addressed this topic in the treatises on theoretical astronomy, but both their texts are incomplete. Fallon, on the other hand, offers a detailed explanation. In his first text he presents the calculation method in the chapter following that of the houses, proposing the common method of using the tables of right and oblique ascensions. However, in the second version he dedicates the entire first treatise to this subject, presenting the calculation of the astrological or celestial figure in a comprehensive way, with several diagrams and all the required tables. He divides his exposition into five chapters; in the first he explains what a figure is:

‘Celestial figure’ is the name of the configuration that the stars, planets and other superior bodies have in the skies in order to influence the Earth. In this matter it must be kept in mind that the superior bodies advance in continuous motion around the Earth, and what is now in the zenith of one place, afterwards is in the nadir, as can be seen with the Sun, the Moon and the stars in plain sight. Therefore, the erection of a figure is to ascertain the exact position of all the stars and parts of heaven in relation to a land, so that from this configuration can be made the judgement on the effects that they cause.⁶²⁰

The house division is discussed next, as it forms the basis of the astrological figure. Fallon mentions the method of the Arabs ‘which Firmicus follows’, and that of Regiomontanus, followed by ‘the Ptolemaic’; he favours the latter and proceeds to explain it in general terms. In the following chapter, he explains the calculation of the figure by five different methods: 1) by the use of a celestial globe; 2) with an astrolabe; 3) by drawing a substitute figure he calls the *analemma*, when no instruments are available; 4) through the use of tables of right and oblique ascension; 5) the common method of using the tables of houses, which by this time

⁶²⁰ Figura caeleste se chama a constituição que tem no ceo as estrellas, Planetas, e mais corpos superiores pera influírem na terra. Para isto se a de supor que os corpos superiores andão em continuo mouimento ao rredor da terra, e que o que agora esta no Zenith de hum lugar; depois lhe fica no Nadir, como se ue ainda no sol, lua e estrelas aos olhos uistos. He pois o aleuantar huma figura averiguar exactamente o lugar de todas as estrellas, e partes do ceo a respeito de huma terra, pera de desta constituição se formar juizo dos Effeitos que causão (Fallon, tr.1, ch.1).

were readily available in printed form. Chapter three deals with the calculation of the positions of the fixed stars, in which Fallon makes a thorough explanation of their projection on the ecliptic. Chapter four teaches the calculation of the planetary positions by the use of the ephemeris and their placement in the figure. Chapter five explains the calculation of the position of the nodes of the Moon, also called the Head and the Tail of the Dragon, as well as the Lot of Fortune. Regarding the latter, he explains the difference between the method of the Arabs and that of Ptolemy, to which he again gives preference.⁶²¹ This section offers no surprises regarding its contents but is quite revealing of the procedures taught during the course, and on the instruments and books required for these calculations: a celestial globe, an astrolabe, a compass, a table of ascensions, a table of houses, and an ephemeris. The latter three would be available in the college library, while many of these instruments would have been already discussed in the theoretical parts, and several surviving lessons of the *Aula da Esfera* teach how to construct them.⁶²² Here they are applied in practice as the necessary tools of an astrologer.

The foundation syllabus

Despite the small differences, the syllabi of all three authors contains the usual topics found in any astrological introductory book, and those that a student would require for the practice of astrological judgements. Nonetheless, despite their similarity in structure, each text is distinctive, revealing each author's personal perspective and scholarship.

Delgado's explanations are by far the most complex, revealing once more his solid background in natural philosophy. He also seamlessly connects the astrological concepts to matters previously taught in the astronomical sections of the lessons. In contrast to the other two authors, he is not willing to discuss the non-natural astrological properties of the signs and the planets, making a point of leaving out concepts that can be considered superstitious. His chief concern is to ground the astrological doctrine on strong natural foundations rather than

⁶²¹ The Lot of Fortune (also called Part of Fortune) is calculated taking the distance between the zodiacal degrees of the Moon and the Sun and projecting it from the degree of the Ascendant. The resulting position is the Lot of Fortune. The 'Arabic' perhaps better called the traditional method, in use since Antiquity applied a different formula for day charts (Sun above the horizon) and night charts (Sun below the horizon). By day the distance from the Sun to the Moon would be taken, and then projected from the Ascendant, while in the night chart the formula would be reversed, taking the distance from the Moon to the Sun. The general idea was to favour the luminary of the moment, by starting with the Sun by day and with the Moon by night. Ptolemy does not refer this reversal and only describes the day calculation. This led the Ptolemaic astrologers to abandon the reversal. Delgado and Dias mention the Lot of Fortune in the treatise on nativities and also use the Ptolemaic formula.

⁶²² For example, *On the use of mathematical instruments* by João Delgado, from 1595 (BL Egerton 2630, fols. 235r-256v), *The two books on the making and use of the astronomical globe* by Francisco Delgado, from 1602 (BL Egerton 2630, fols. 108r-119r), and the untitled mathematical lessons by Giovanni Paolo Lembo, from 1615-1617, that teach how to build a telescope (ANTT M.L. 1770, fols. 135-135 v).

presenting all the minutia that students can find in any astrology primer. Dias is not as detailed as Delgado concerning the natural philosophy but in turn includes more astrological material. He appears to be more at ease with it and less concerned in justifying his teaching, being perhaps the less revisionist of the three. Fallon is more detailed in this exposition of the astrological doctrine in the first text and very succinct in the second (sometimes excessively). Differently from the previous authors he embeds several astronomical explanations together with the astrological theory, grounding it in sound mathematical calculations.

In general terms, apart from some missing secondary concepts, or a less detailed explanation, the basic contents of their doctrine are the same in all three authors. At the end of the basic curriculum the student would be well aware of the qualities of the signs of the zodiac, the qualities and conditions of the planets, and of the twelve houses. Fallon also includes the calculation of the astrological figure, and introduces the Lord of the figure, the Lot of Fortune, the almutem, the hyleg and the alcocodem; these are topics the other authors only address later in the section on nativities.

Notwithstanding the particularities of each text, Delgado, Dias and Fallon's presentations of astrology are the result of a transformation of the internal arrangement of the doctrine that took place during the sixteenth century. The growing search for a natural astrology and the discussions regarding the licit and illicit practices for a Catholic, resulted in a complete exclusion of all forms of astrology that went beyond these bounds; Santo Antônio's introductory programme reflects this state of affairs. The most obvious of these sanctions is the multitude of meanings associated with the celestial houses. In any pre-sixteenth-century text there would be a large number of significations listed for each house. However, in the lessons of Santo Antônio this is largely omitted, and the houses are essentially reduced to a device for measuring planetary strength explained by the natural variations in the angle of planetary rays; any other associations are presented reticently or as misconceptions of the ancients. The same happens with some of the secondary attributes of the signs, which are only listed – almost as mere curiosities. Delgado is the best example of this exclusion, and here he appears to be following his master, Clavius. The manner in which the houses, the essential dignities, and the attributes of the signs are presented are very similar to those in Clavius's manuscript (Urb. Lat. MS 1304) and a systematic comparison of the two texts would certainly reveal even more parallels. A similar position on the houses can be found later in the *De mathematicis disciplinis* of Hugh Sempill, who does not reference their signification, in Giovanni Battista Riccioli, who issues a

caveat regarding their superstitious significations in the *Almagestum novum*, as well as in Kaspar Schott's *Cursus mathematicus*, who follows Riccioli's listing closely.⁶²³

The abandonment of significations of the houses had profound implications for astrological judgements, in particular the judgements of nativities. These became strictly limited to the native's inclinations and health, leaving aside almost all the spectrum of human life usually addressed by astrology such as wealth, achievements, marriage and children. This will be mostly visible in the nativity section of the lessons, as will be addressed further on. Whether they are the houses or other astrological principles, the reformative attitude of the Jesuit programme distinguishes what is 'natural' and scientific from what are nonsensical concepts, at the same time considering what operates within the moral limits of the Catholic Church. Thus 'natural' in the Jesuit's view is a concept or a practice that is sound both from a scientific and a Christian point of view.

However, the exclusion of the less natural elements of astrology would not necessarily occur in other authors, particularly in those less constrained by the strictures of natural astrology and the Catholic regulations, or even more in those less concerned with the academic philosophical discussions and more interested in the practice of astrology. Yet, as discussed in Part One, all authors of this period, Catholic or non-Catholic, theorists or practitioners, include in their astrological doctrine, in one form or another, new models and variations of the traditional concepts. In the lessons of the *Aula da Esfera*, apart from the celestial houses, there are several examples of these novelties. The most noticeable is the shift towards Ptolemaic dignities, seen in the triplicities and in the terms, and discussed above. A less conspicuous change was the size of the orbs and consequently the limits of combustion and the extension of the aspects. As to new approaches to astrology, the best example is the changes in the scoring of the planetary strength which was expanded to include the accidental dignities and debilities. This new system had also a significant impact on certain methods of judgement as will be explored further on.

A comparison of this programme with the basic astrological curriculum put forward by other Jesuits unsurprisingly reveals the same common ground. Hugh Sempill places a summary of mostly the same astrological foundations in the astronomical section of his *De mathematicis disciplinis* (1635), and Kaspar Schott presents an almost identical sequence of the doctrine in

⁶²³ Riccioli, *Almagestum novum*, 44 (Book I, Chapter XXXIV); Schott, *Cursus mathematicus*, 297.

the astrology chapter of the *Cursus mathematicus* (1661). It must be noted however that both authors write much later than Delgado and Dias; only Fallon is contemporary of Sempill. Delgado's lessons precede Sempill's book by almost three decades, being most likely a precursor of this type of curriculum among Jesuits. A comparison between any of these programmes with the one proposed by Francesco Maurolico sometime in the 1560s for the Jesuit college of Messina (see Part Two) shows significant differences which testify the profound changes to the practice of astrology in a Catholic context in four decades. Maurolico lists several parts of astrology that later became considered obsolete, such as certain attributes of the degrees of the zodiac (lucid, dark, smoky, void, etc.) and the Lunar Mansions; he also includes others, that were repudiated by the Church as unsound for a Catholic, such as interrogations and certain elections. Another noticeable difference is the list of sources. Maurolico has the Arabic authors as his main source, with just a few contemporary texts mentioned, whereas the teachers of Santo Antão mention mainly sixteenth and seventeenth century authors, with few mentions of Arabic sources; and even these are usually through their modern commentators. This clearly highlights the shift at the core level of the foundational principles of the astrological doctrine, from a medieval-Arabic tradition towards a Christian European mindset. Apart from Ptolemy, the most cited authors in the foundation section of the lessons of *Aula da Esfera* are Giovanni Antonio Magini (*Isagoge in Iudiciariam Astrologiam*, 1582) and Valentin Naibod (*Enarratio elementorum astrologiae*, 1560), which inspired some of the structuring outlines of the lessons;⁶²⁴ others are Pedro Ciruelo (*Apotelesmata astrologiae christianae*, 1521), Girolamo Cardano (*De supplemento almanach*, 1543) and David Origano (*Ephemerides Novae Annorum XXXVI*, 1599).⁶²⁵ With such a list of references the astrological teachings of Santo Antão was securely mounted in modern European scholarship.

Brief notes regarding the other manuscripts

The two ANTT CPN 38.2 texts and the *Tratado da astrologia pratica* (BPMP Ms. 1895) follow a similar structure to that of the above treatises. Given their likely Jesuit origin, it is relevant at this point to make some remarks on their presentation of the astrological doctrine. The first two, the *Astronomical Introduction* and the *Principles of Astrology* from the 1590s decade include

⁶²⁴ Magini, *Ephemerides Coelestium Motuum*; Valentin Nabot, *Enarratio elementorum astrologiae* (Cologne: Arnold Birckmann, 1560).

⁶²⁵ Pedro Ciruelo, *Apotelesmata astrologiae christianae. Nuper edita a magistro Pedro Ciruelo Darocensi: super duabus tantum judiciorum partibus: hoc est: de mutationibus temporum: & de genituris hominum. Rejectis omnino interrogationibus: & vanis electionibus falsorum astrologorum* (Madrid: Arnaldo Guillermo de Brocardo, 1521); Cardano, *Libelli duo*; Origanus, *Ephemerides Novae Annorum XXXVI*.

only the foundations of astrology, and very little on judgement methods. The *Astronomical Introduction* is the simplest of them. Its purpose is to introduce the topic to the student and does not engage in any kind of explanation. It enumerates the qualities of the signs, planets, houses and presents in succinct form the dignities, the aspects and other planetary conditions. It includes elementary instructions on how to calculate an astrological chart or figure and some basic instructions on how to identify the significators in the chart, a fundamental step before an astrological judgement of any kind. The *Principles of Astrology* (1590) is a bit more complex, and although it does not go too much into explanations, it offers more detail in each component than the previous text. It equally lists the attributes of signs, planets and houses, and presents the aspects and various conditions of the planets. The section of the calculation of the astrological figure is much more detailed, providing examples.

What distinguishes both these texts from the above treatises is the liberal inclusion of many elements of the doctrine that Delgado, Dias and Fallon would consider borderline or even completely superstitious and irrational. These include the above debated significations of the houses, certain attributes of the signs and planets, the planetary hours, and a list of several ‘parts’ or lots, which, as seen before, with the exception of the Lot of Fortune virtually disappear from astrological practice in the seventeenth century. Again, it must be noted that excluding the case of the lots, these components are common in other astrological texts, particularly those printed in non-Catholic countries. This inclusion is likely due to the early date of these texts and the lack of a precise regulation on these matters. In many Portuguese and Spanish printed almanacs of this decade there is still no censure on these topics of astrological doctrine. This only begins to appear in the following decades.⁶²⁶ If fact, although both CPN 38.2 texts already present a similar structure to the later *Aula da Esfera* lessons, they are reminiscent of Maurolico’s programme. These features strongly dismiss Delgado as a possible author, since the text does not show his emblematic rigor. However, since there is a seventeen-years difference between the two texts, it is not inconceivable that these could be an earlier version, showing still a different posture on astrological practice.

On the other hand, the *Tratado da astrologia pratica* (BPMP Ms. 1895), from 1641, is in the same line as the other larger lessons, especially in the fact that it is manifestly included in a larger programme of mathematical lessons together with astronomy and arithmetic. It not only

⁶²⁶ For details on this matter see Ribeiro, ‘The Bounded Heavens’, 63–69.

includes the principles of astrology, but also a complete section on astrological weather forecasting, which will be addressed next. The introductory principles are mostly the same as those presented in the classes of Santo Antão and follow the typical Ptolemaic ordering and tone. It also dismisses the traditional significations of the houses as contrary to free will, but it includes some elements in dispute, such as planetary hours and special degrees. All astrological doctrine is presented in a very structured and thorough manner offering a succinct definition of the doctrine, in a clearer manner than any of the other treatises, and always accompanied by the necessary caveats and astronomical computations.

Judging the world

After the explanation of the principles of astrology, all three authors address the judgement of the weather. Only Delgado's and Fallon's texts have survived, but it is most likely that Dias's treatise would have presented the same doctrinal corpus as the other two. As the rules for judgement of weather are too complex to fully discuss here, only the more general principles will be addressed so that the explanations do not delve too much into the particulars of the astrological doctrine.

The judgement of weather was considered one of the most natural forms of astrology since it showed the natural effects of the planets on the climate, being useful for the most part for agriculture and to a lesser extent to medicine (i.e. the effects of the climate on human health). However, the very same tools applied for astrological weather forecast were also traditionally used to judge political changes, wars and other collective human affairs (all being part of general or mundane astrology). Most of these judgements were considered to infringe on free will, thus being illicit for Christian practitioners. Following this precept, the authors restrict their doctrine to weather forecasting, but occasionally some political remarks slip into their discourse. In truth, the literal translation of the Portuguese title 'Dos juizos dos tempos' would be 'on the judgements of the times', as the word 'tempo' can mean both time and weather (as also does 'tempus' in Latin). Therefore, despite the focus on weather, these are also judgements of the times, which would include to some extent some human collective activities.

To avoid such confusions as much as possible, both Delgado and Fallon address the main causes for the changes in the air. Here they both contribute to an old argument between two doctrines: the great conjunctions of Albumasar and the lunations of Ptolemy. The Arab astrologer Albumasar in his work *On the Great Conjunctions* emphasises the role the larger

cycles of Jupiter-Saturn conjunctions have in the prognostication of collective events.⁶²⁷ These occur in smaller cycles of twenty years, and larger series of two hundred and forty and seven hundred and ninety-five years.⁶²⁸ Thus, he proposes that they signify not only minor changes in both climate and human affairs in their smaller cycle, but also the long-term changes of countries and religions, as a result of their longer cycles. Ptolemy, on the other hand, makes no mention of the conjunctions of the slower planets, grounding his weather and collective prediction doctrine on the interpretation of eclipses and regular lunations. The argumentation as to which doctrine was more efficient and valid spanned the whole Middle Ages, but by the sixteenth century Ptolemy's view gained an almost unanimous acceptance as the leading method for the prognostication of collective events. This did not necessarily imply an abandonment of the theory of conjunctions, but it came to be seen by many as subsidiary to the lunation method.⁶²⁹ Nonetheless, there were some like Delgado that, being strong adepts of the Ptolemaic doctrine, discarded the Jupiter-Saturn conjunctions altogether. This is quite clear in Delgado's opening statement for this section:

Since the more common principles for astrological judgements have been explained, the order dictates that we should now speak of the judgements of the times of the year and their qualities for which are necessary only two considerations: one of the complexion of the air that flows by reason of some ecliptic conjunction or opposition of the luminaries [i.e. solar or lunar eclipses], which are absolutely of the utmost efficacy, as if they were universal causes, limited by another disposition of the air deriving from the other non-ecliptic conjunctions and oppositions in certain times of the year, which we can call less universal or particular causes in comparison to the first. And the things which these [latter] promise will be the second consideration. So that one and another combined and evaluated between each other, when the different weight of planets and signs are taken into consideration, can result in the perfect judgement which the astrologer intends to accomplish in the same fashion as a judge between two parties in a lawsuit. I mentioned two considerations alone because the consideration of the great orbs or of the greater, middle and lesser conjunctions dealt with by Albumasar, Haly Abenragel, Aomar, and others of the same mould, are today despised by those that better and more naturally prognosticate in the same manner as Ptolemy.⁶³⁰

⁶²⁷ Abū Ma'shar, *On Historical Astrology: The Book of Religions and Dynasties (on the Great Conjunctions)*, trans. Keiji Yamamoto and Charles Burnett, 2 vols (Leiden: Brill, 2000).

⁶²⁸ A Jupiter and Saturn conjunction occurs approximately every twenty years; these are considered as minor conjunctions of a larger cycle in which the sequence of conjunctions occurs in a sign of the same element for about 240 years. In turn, there are part of a much larger cycle of about 795 years in which the conjunctions move through all four elements. Due to these different levels they were seen by Albumasar and many other authors as the main force behind the great historical events. Within this theory are also considered, although with less prominence, other conjunctions of the superior planets, namely Jupiter-Mars and Saturn-Mars, whose cycle is less complex.

⁶²⁹ As becomes evident when studying examples of judgements, in their practice most astrologers would combine the two systems in their forecast, particularly those more focused on practical applications and less concerned with academic discussions. On this debate see Bezza, 'Saturn-Jupiter Conjunctions and General Astrology: Ptolemy, Abu Ma'shar and Their Commentators'; Hasse, 'Astrology: Ptolemy against the Arabs', 267–89.

⁶³⁰ Explicados os princípios mais comuns para todos os juízos astrológicos, segue-se por a nossa ordem que digamos dos juízos do tempo do anno ou suas qualidades, para o qual são necessárias duas considerações somente; huma da compleição

He consolidates his view with those of Pedro Ciruelo and Albert Pigghe who wrote against this sort of prediction made by Gaspard de Laet,⁶³¹ as well as that of Nabot, who in this regard comments against the opinion of Alcabitius. The reasons are not only technical, but most of all practical, since Delgado considers that the assumptions of Albumasar as to the potentials of the conjunction doctrine extend far beyond what is naturally possible and permissible:

Albumasar also judges by means of his greater conjunctions many things that are impossible to judge through the common natural efficiency of the stars, such as the beginnings and ends of empires, religions, sects, all the deluges which can occur many times by the occult judgement of God in revenge for the sins of Men, as can be understood in the sacred scripture to be a manifestation of His divine will, and other portentous things and miracles of the Antichrist, etc. In [his treatise] he puts forward many impious propositions against God and the true Christian religion.⁶³²

According to Delgado, another nonsense of the conjunction theory is the amount of time that the effects of such conjunction would have to endure, such as ‘three or four thousand years’. In his view this would not conform to the natural durations of other celestial cycles, and the level of interference of one cycle over another would dissipate any long-term effects. He concludes that ‘in no judgement do we want to use of the greater conjunctions of Albumasar, holding them to be most vain and without foundation’.⁶³³ Still, Delgado spends some paragraphs of his discussion dispelling all possible doubts. For example, he dodges the pseudo-Ptolemaic statement regarding the conjunctions in the sixty-fourth sentence of the *Centiloquium*, using Pigghe’s argument that the greater, middle and minor conjunction mentioned in the sentence refer not to Jupiter and Saturn but to different conjunctions of the Sun and the Moon.⁶³⁴ Having

do ar que corre por reção dalguma conjunção ou φ eclíptica dos luminares, que são absolutamente de maior eficácia, como se forão causas universais limitáveis por outra disposição do ar das demais conjunções e oposições não eclípticas em certos tempos do anno a que podemos chamar causas menos universais ou particulares, em comparação das primeiras. E o que estas prometerem será a segunda consideração para que huma e de outra combinadas e contrapesadas entre si resulte o perfeito juízo que o astrólogo à maneira de julgador entre partes de justiça, diferentes que são os planetas e signos com seus quilates, fazer pertende. Disse duas considerações somente porque a consideração dos orbes grandes ou das conjunções máximas, means e mínimas de que Albumasar, com Haben Ragel, Omar e outros desta farinha tratão, são hoje com reção desprezadas dos que melhor e mais naturalmente pronosticão com Ptolomeu’ (Delgado, tr.2 ch.1).

⁶³¹ On Ciruelo and Pigghe see Lynn Thorndike, *History of Magic and Experimental Science. The Sixteenth Century*, vol. 5 (New York: Columbia, 1941), 275–83.

⁶³² Julga também Albumasar por meio de suas conjunções grandes, de muitas coisas que são impossíveis julgar-se por via natural de eficiência ordinária das estrelas, como dos princípios e fins dos impérios, das religiões, das seitas, de todos os dilúvios, os quais podem acontecer muitas vezes por juízos ocultos de Deus em vingança dos pecados dos homens como dá a entender a sagrada escritura, ou para manifestação da sua divina vontade e outras cousas portentosas e milagres do antecristo, etc. Onde traz muitas proposições impeisimas contra Deus e contra a verdadeira religião cristã (Delgado, tr.2, ch.1).

⁶³³ Pelo que em nenhum juízo queremos usar das conjunções grandes de Albumasar tendo-as por vaníssimas e sem fundamento (Delgado, tr.2, ch.1).

⁶³⁴ Sentence 64 of the *Centiloquium* has a complex history and its meaning has not been always completely clear. In the sources available in the sixteenth century, the aphorism states that ‘In Expositione summarum universalium per divinationem et conjunctiones maiores, medias et minores’ and its translation has been discussed by many authors. James Holden translates it as ‘In the minor conjunction, the difference of the mean conjunction, and in the mean conjunction the difference of the greatest conjunction’ (James H. Holden, *Five Medieval Astrologers* (Tempe (AZ): American Federation

established the importance and pre-eminence of lunations, the most rational and natural method, over other configurations, Delgado proceeds to discuss the effects of eclipses. The emphasis and detail spent on this discussion shows the importance Delgado placed on replacing the popular theory of conjunctions of Albumasar, to which students were certainly exposed, by an equivalent reasoning using the lunations of Ptolemaic doctrine. Any other planetary conjunctions should, in Delgado's view, be considered in the context of the eclipses. Only in this case would the Jupiter-Saturn conjunction will have a noticeable effect.

Fallon, though himself an adept of the Ptolemaic methods, is not so adamant in his discussion. Like Delgado he also considers the lunation method to be more rational and natural than the great conjunctions. Yet, while in his first text he is stricter and considers the theory of great conjunctions to be nonsense, by 1639, in its later version, he appears more accepting. From the last statement he makes regarding the great conjunctions it can be inferred that he was not entirely opposed to its use in judgements, albeit he does not recognise in them any political signification:

What seems to me is that to these conjunctions cannot be denied great influences such as the changes in the air, dryness, sterility, inclination towards war, etc., for we see that the conjunctions of other inferior planets have similar effects. Although, in no way do I approve that they signify changes in empires, and states, for it is certain that these are the effect of Divine Providence and the government of God.⁶³⁵

After this discussion both authors address the effects of eclipses and their method of judgement. Here they both follow the standard Ptolemaic methodology described in the *Tetrabiblos* or *Quadripartitum*.⁶³⁶ This consists in a study of the eclipse in four parts, including the calculation of an astrological figure for the medium time of the eclipse from which all judgements are based. The first part accesses where the eclipse will have its effects, the second part deals with

of Astrologers, 2008), 80.) In the edition by Franco Martorello and Giuseppe Bezza, translated from the Arab, it reads 'in the minor conjunction there is the specification (*tafṣīl*) of the mean conjunction and in the mean there is the specification of the greatest conjunction' (Al-daya Ahmad Ibn Yusuf Ibn, *Commento al centiloquio tolemaico*, ed. Giuseppe Bezza and Franco Martorello (Milano: Indo-Iranica et Orientalia, 2013), 171–73.) The sentence discusses the hierarchical relationship between conjunctions. Jupiter and Saturn are not mentioned but inferred for two reasons: because they are in clearly stated in the previous aphorism, and also the terms minor, middle, greater conjunctions are primarily used in the context of the conjunction cycle of Jupiter and Saturn. However, according to the opinion of Pigghe and others, the greater conjunctions mentioned by Ptolemy would be in fact conjunctions of the luminaries: the greater conjunctions would be the eclipses, the middle would be the conjunctions in equinoctial and solstitial signs coinciding with the beginning of the seasons, and the small the regular monthly conjunctions. For a short overview on the debates surrounding this aphorism see Holden, *Five Medieval Astrologers*, 80, footnote 163.

⁶³⁵ O que me parece é que a estas conjunções se não pode negar grandes influências, com são mudança de ares, securas, esterilidades, de inclinações a guerras, etc., pois vemos que as conjunções de outros planetas inferiores têm semelhantes efeitos; ainda que de nenhum modo aprovo em tudo significarem elas mudanças dos impérios, e estados, pois é certo que estas são efeito da Divina Providência, e governos de Deus' (Fallon, tr.3, ch.2).

⁶³⁶ *Tetrabiblos* II.4-9.

the time in which the effects of the eclipse begin and their duration, the third considers what kind of things are affected by the eclipse, and the fourth ascertains the quality and complexion of its effects. At the end they also add some considerations as to the interpretations of the eclipse's appearance, namely its colour and that of the clouds and sky. Delgado also discusses comets in this section, a topic that Fallon addresses in his earlier text, but not in the Santo Antão lessons. Fallon also includes at the beginning of the chapter on eclipses a complete mathematical discussion on their calculation, their visibility and the use of parallax; Delgado choses to discuss these technical matters in the last section of the astronomical course.

For the most part they follow the common rules: the effects of the eclipse will be primarily felt in the regions where it is visible, in particular those associated with the sign where the eclipse takes place.⁶³⁷ After dispelling some assumptions they believe to be erroneous or nonsense regarding these associations, both authors provide a list with the corresponding sign of several countries and cities.⁶³⁸ The qualities and nature of the effects of the eclipse are dealt with in the third and fourth part of the judgement. They are deduced by the nature and significations of the sign where the eclipse takes place and by the configurations of stars and planets in the astrological figure of the eclipse. From the figure is also established the ruler of the eclipse, which is the planet with greater strength and dignity in certain positions of the chart. In this regard Delgado and Fallon discuss the various opinions of the experts and provide a list of the effects of each planet when ruler of the eclipse. It is in the matter of the duration of the eclipse that both authors diverge from the common method.

Two things are studied when judging the length of the effects of an eclipse: the overall duration of the effects and their beginning. The duration of an eclipse depends on its type: a solar eclipse is measured in years, while a lunar eclipse is measured in months. Thus, for each hour that the eclipse lasts, its effects will extend for one year or one month. According to this methodology the effects of a solar eclipse could easily span two or three years, and a lunar eclipse, up to four months. The beginning of their effects is established differently. This is found

⁶³⁷ This can be further extended to those regions associated to the two signs of the same triplicity as the eclipse sign, and in some authors to the opposing sign.

⁶³⁸ The association of regions and cities to certain signs, and sometimes planets, is one of the foundations of astrological judgement since Antiquity; this is sometimes called astrological geography or astrological chorography. On this topic see: Auguste Bouché-Leclercq, 'Chorographie Astrologique', in *Mélanges Graux. Recueil de Travaux d'érudition Classique. Dédié à La Mémoire de Charles Graux*, ed. Ernest Thorin (Paris: Librairie du Collège de France, 1884), 341–51; Franz Cumont, 'La plus ancienne géographie astrologique', *Klio* 9, no. 3 (1909): 263–73; Marcus Manilius, *Astronomica*, trans. George Patrick Goold (Cambridge, Mass: Harvard University Press, 1977), Ixxxix–xcii; Hübner, *Die Eigenschaften Der Tierkreiszeichen in Der Antike*.

using its position in the celestial houses above the horizon, from the Ascendant to the Midheaven, and then to the Descendent. This space is divided into three segments and if the eclipse takes place in the first third of this space (which coincides with the twelfth and eleventh houses) its effects will be felt in the first four months after the eclipse; if in the second third (tenth and ninth houses) between the fifth and the eighth month; and in the third (eight and seven houses), between the ninth and the twelfth month.⁶³⁹

However, both authors advocate a significant change in this method. They believe that the effects of a solar eclipse should not last more than one year, as this is the natural span of an entire solar cycle, and accordingly the effect of a lunar eclipse should not extend beyond one month. Thus, Delgado proposes that each hour of a solar eclipse should be considered four months; for the lunar eclipses he proposes to keep the traditional month. Following the same logic, he recognises that each hour of the distance of the point of the eclipse to the oriental angle (the Ascendant) should be given one day in case of a solar eclipse, or six hours in a lunar eclipse:

However, I would say, not wanting to go against the opinion of those that follow Ptolemy, that eclipses begin to work immediately, at the same time [as they occur], because once the natural cause has been set in motion, its effect should also be set in action, even if we do not feel it or see it straightaway. What later can be experienced on each horizon [i.e. latitude] is given by [equating] each hour of distance from the oriental point to the place of the eclipse to one natural day of twenty-four hours in the case of the Sun, rather than a month for each hour before its [effects] begin, as others would like. And in the case of the Moon, for each hour of distance, six hours of delay before its effects begin to show, which is the fourth part of the time of the Sun – that in one natural day revolves around the world with the other planets, causing the four variations of morning, afternoon, night and day, that correspond to the four simple qualities, moist, hot, dry and cold.

In the same [manner] I would extend the effect of the Sun to four months for each hour of obscurity instead of a year; and in the Moon I would leave it as one month for now, being as I said above the fourth part of the time of the Sun. And if some explanation for this was desired it would be because in one year the Sun makes around the zodiac the complexions of the four varieties of weather: winter, spring, summer and autumn; in one month the Moon makes its four quarters. And in this fashion, since it is most common that the largest eclipse of the Sun lasts from three to four hours, none of the effects of the eclipses would extend more than little beyond a year; nor does it seem that this much should extend the effects of the ecliptic conjunctions or oppositions over the other non-ecliptic ones, as the authors commonly say. And in this manner much confusion will be removed in the judgements where [it happens that], before the time [the effect] of one eclipse is over, others occur [and] of [a] different complexion that must necessarily be considered by observing if they change or not, and how, the preceding significations.⁶⁴⁰

⁶³⁹ These thirds also establish when the effects will be felt with more intensity. Using the same measure of thirds, an eclipse in the first third would have its larger effects in the first third of its total time, etc.

⁶⁴⁰ Porém eu dissera sem querer prejudicar a opinião dos que seguem Ptolomeu que as eclipses logo começam a obrar no mesmo ponto porquanto posta em acto a causa natural deve-se também porem acto o seu efeito ainda que nos logo o não sintamos ou enxerguemos. Item que o mais tarde que se poderá sentir em cada horizonte he dando por cada hora de distância do ponto oriental ao lugar da eclipse espaço de hum dia natural de 24 horas no ☉ e não hum mês por cada hora antes de

Differently from all other instances in the chapter, Delgado does not offer a source for this methodology, which he appears to be presenting as his own. Fallon, three decades later advocates the same method, again establishing the timing of the eclipse within the natural cycles of the two luminaries, thus giving a natural basis for their interpretation. Yet, he does not discuss it with the same complexity as Delgado, giving the impression of it being just a theoretical consideration, rather than a practice:

What I understand in this matter is that the effects of a solar eclipse (whatever its duration) cannot surpass one year, and those of the lunar must be within a month. The reason is that these conjunctions are natural causes that, when set in motion, can in no way not produce their effects. If someone says the contrary, that the Sun is also a natural cause, and yet it does not always produce the same effect, I reply that, in that same example, and concurring with our conclusion, as every kind of effects that the Sun produces, are done so in the course of one year – which corresponds to all the signs of the zodiac – so the same [time of one] year must be the limit of all solar ecliptic conjunctions, and one month those of the lunar conjunctions, because this time corresponds to [their passage] in all signs of the zodiac.⁶⁴¹

The following chapters address the other astrological methods to evaluate the conditions of the weather. The overall condition of the year is judged through the ingresses of the Sun, also known as revolutions of the years of the World. This method entails the calculation of the figure of the ingress of the Sun in Aries, the Spring equinox – a moment generally considered the beginning of the natural year. However, the authors make several cautionary observations. First, the beginning of the year is different in many cultures; thus, the astrologer should calculate the figures of all the four cardinal ingresses which mark the beginning of the seasons (Aries, Cancer, Libra and Capricorn). The second is that there is a great deal of imprecision in establishing the exact time of the ingress of the Sun into a sign, making it a fallible technique.

começar como os outros querem. E na ♃ por cada hora de distância, 6 horas de dilação para começar aparecer o seu efeito que he a 4.^a parte do tempo do ☉ o qual em hum dia natural dá volta ao mundo com todos os mais fazendo neles 4 variedades de manhã, e tarde, noite e dia que respondem às 4 simples qualidades húmido, quente, seco, frio. Da mesma maneira eu estendera o efeito do ☉ a 4 meses por hora da escuridade e não a hum ano e na ♃ deixara o seu mês por ora como acima se disse que he a 4.^a parte do tempo do ☉. E se disto se desejasse alguma conveniência seria porque em hum ano faz o ☉ ao redor do Zodíaco as compleições das 4 varieades do tempo, Inverno, Primavera, Estio, Outono, que em hum mês faz a ♃ com os seus 4 quarteirões. E deste modo sendo quase ordinária a maior eclipse do ☉ de 3 até 4 horas, nenhum efeito das eclipses se estenderia senão a pouco mais de hum ano, nem parece que tanto devem exceder os efeitos das conjunções e oposições eclípticas sobre as outras não eclípticas como os autores comumente dizem. E deste modo se quitará muita confusão nos juízos quando antes de se acabar o tempo de huma eclipse sobrevem outras e outras de diferentes compreições a que necessariamente se deve ter consideração, vendo se alterão, e como, os significados precedentes ou não (Delgado, tr.2, ch.1).

⁶⁴¹ O que entendo nesta matéria é que os efeitos do eclipse solar (fosse de qualquer duração) não pode passar de um ano, e os do lunar são dentro do 1.^o mês. A razão é porque estas conjunções são causas naturais que postas em acto não podem não produzir seus efeitos. E se alguém disser o contrário que também o Sol é causa natural, e que contudo nem sempre produz o mesmo efeito. Respondo que esse mesmo exemplo conforme a nossa resolução porque assim como toda a variedade de efeitos que o Sol faz são sempre no espaço de um ano, no qual corresponde a todos os signos do Zodíaco, assim deve de ser o mesmo ano termo de todos os efeitos das conjunções eclípticas solares, e um mês, das conjunções lunares, porquanto neste tempo corresponde a todos os signos do Zodíaco (Fallon, tr.3, ch.3).

Thus, and once more following Ptolemy and the lunation's methodology, the astrologer should calculate the figure of the lunation (New or Full Moon) immediately preceding the ingress and make the judgement based on this moment.⁶⁴² This would not only guarantee precision, but also set the lunation as the key point for the interpretation, as with the eclipses. Once more they are favouring the Ptolemaic doctrine and at the same time anchoring the judgements in natural phenomena. Once these four figures are established, the strongest planet would become the lord of the year. Fallon summarises the whole method quite clearly:

Leaving aside all these opinions [regarding the moment of the beginning of the year], and following Ptolemy, Ciruelo, Pigghe, Belanti, Origanus, and the commonality of modern astrologers, I say that, in order to judge the revolution and complexion of the year, four figures should be erected at the four times of the year, which are the same as the entrance of the Sun into the four cardinal points, that is, the two equinoxes, and the summer and winter solstices. However, because it is most difficult, and most uncertain [to establish] the time in which the Sun enters these cardinal points, the most competent and used [method] is to erect these figures for the conjunctions or oppositions of the luminaries that immediately precede them.

The planet that in all these four figures has more dignities will be the lord of the year, and the one that comes closer to it in strength will be its companion. The truth is that, to make a judgement in the best way, one should note the lord of each quarter in particular and judge according to it, always considering what has been said about the particular nature and qualities of each quarter.⁶⁴³

Both authors list the effects of each planet when lord of the year, according to their accidental conditions: combust, stationary, retrograde or direct, oriental or occidental, and northern or southern in latitude. Afterwards Delgado and Fallon discuss the monthly forecast of the weather, which is based in the study of the lunations, as well the weekly and daily forecasts which are based on the stars that rise and set with the Sun, and whose effects and nature are listed by the authors. At the end of the treatise both Delgado and Fallon present a list of some

⁶⁴² Whether it should be judged the figure of the moment of the ingress (or as well any conjunction) or the preceding lunation, was a main topic of discussion among astrologers. Most appear to have favoured the lunations, others used the moment of the ingress or conjunction, while other would use both the figures of lunations, ingresses and conjunctions. On this topic see Maxime Préaud, *Les astrologues à la fin du Moyen Âge* (Paris: J.C. Lattès, 1984), 142–43; Alexandre Tur, 'Hora introitus solis in Arietem. Les prédictions astrologiques annuelles latines dans l'Europe du XVe siècle (1405–1484)' (Ph.D Thesis, Orléans, Université d'Orléans, 2018), 33–36; Helena Avelar de Carvalho, 'The Making of an Astrologer in Fifteenth-Century France. The Notebooks of S. Belle: Lisbon, MS 1711 and Paris, NAL 398' (PhD thesis, London, University of London, The Warburg Institute, 2018), 85–87, <https://sas-space.sas.ac.uk/9460/>.

⁶⁴³ Deixadas todas estas opiniões, e seguindo a Ptolomeu, Ciruelo, Phigio, Belancio, Origano, e o comum dos astrólogos modernos, digo que para se julgar da revolução e compleição no ano se hão de levantar quatro figuras aos 4 tempos do ano, que é o mesmo que à entrada do Sol nos 4 pontos cardeais, a saber os dois equinócios e solstícios hiemais e estivais. Antes porque é dificultosíssimo, e incertíssimo o tempo em que o Sol entra nestes pontos cardeais, o mais competente e usado é levantarem-se estas figuras às conjunções ou oposições dos luminaries proximamente precedentes deles (Fallon, tr.3, ch.4). Assim que o planeta que em todas estas 4 figuras tiver mais dignidades, esse será o senhor do ano, e o que dele se chegar mais e fortaleza será o companheiro. Verdade seja que para se formar melhor juízo se há de atentar o senhor de cada quadrante em particular, e julgar conforme a ele atentando sempre o que acima dissemos acerca da natureza e qualidades particulares de cada quadrante (Fallon, tr.3, ch.4).

common signs regarding the appearance and colour of the Sun, Moon, stars and the sky, and their signification on the weather.

The study of Delgado's and Fallon's treatise shows that in terms of content both are very similar; the main differences have to do with the sequence of presentation of the subjects and their detail rather than content. In many instances the similarity in the discussion of the subjects suggests that Fallon must have learned either from Delgado's notes or from someone using his methodology. Generally speaking, both texts conform to the standard practice of astrological weather forecasting. A comparison with the doctrine of weather forecasting presented by Sempill reveals many similarities. Although in a much more summarised version, he also puts great emphasis on the eclipses, as well as on the use of lunations in the study of the four annual ingresses. He also discusses the great conjunctions, but in a similar fashion gives them less prominence and, as Delgado and Fallon, dismisses their political use.

It is quite noticeable that Delgado and Fallon are proposing a course on Ptolemaic astrological weather forecasting, strongly founded on a natural view of astrology. This implies changes both in some of the traditional concepts of the astrological doctrine, as demonstrated by the lessening of importance, and almost exclusion, of the Jupiter-Saturn conjunctions. The reasons for this are twofold. The first and most perceptible reason is directly related to the Ptolemaic line of astrology that both authors follow, and which centres on the judgement on the lunations. The second is that the conjunctions of the superior planets were the chief tool for political prediction, something unacceptable by the precepts of the Church. As the conjunctions were not part of Ptolemy's doctrine and were presented by an Arabic author, their dismissal was relatively easy, and comes as no surprise.⁶⁴⁴

Another relevant modification occurs in the techniques of judgement. This is exemplified by the case of the eclipses, whose timing had to have some conformity to the natural cycles of the planets and not extend for unreasonable amounts of time, as was traditionally accepted. Thus, a natural methodology is offered as a more suitable and less confusing option. This process of revision is the main feature that distinguishes Delgado's and Fallon's approach to weather forecasting. Though they are not the only examples of this movement, they are certainly among the most representative. The constant concern for the naturalisation of the astrological doctrine, is undoubtedly a distinct feature of their lessons.

⁶⁴⁴ See Hasse, 'Astrology: Ptolemy against the Arabs', 272–98.

Table II.18 – List of contents of the texts on weather forecast

Delgado	Fallon (text 1)	Fallon (text 2)	Sempill
<ol style="list-style-type: none"> 1. On the judgements of eclipses. 2. On the colours of the eclipses and other signs that ratify them. The digression of the comets. 3. Of the regions and places subjected to the 4 triplicities, the 12 signs and 7 planets. 4. Of the nature and effects of the fixed stars. 5. How to make true judgements by the zodiac of the eight heaven. 6. Of the beginning of the year [including also monthly lunations and apparent signs]. 	<ol style="list-style-type: none"> 1st. Of the universal causes of which is dependant the judgement of the times. 1. Some universal causes the ancients attributed to changes in the weather. 2. How the eclipses signify general changes in the weather. 3. What manner of thing are eclipses, how they are made and observed. Of the meaning of the eclipses. 4. How the comets are caused and what they signify in the changes of weather. 2nd. Of the particular causes of the changes in weather. 1. Of the changes that the Lord of the Year causes in the weather. 2. What the planets prognosticate when they are the Lords of the Year. 3. Of the particular changes in the months of the year. 4. Of the changes of the air on each day. 5. Of the changes that the winds cause in the air. 	<ol style="list-style-type: none"> 1. What lands, and how they are subjected to the influences of the celestial bodies 2. In which are declared the universal causes of weather change 3. What do ecliptic conjunctions prognosticate 4. How to make the astrological judgement of the year 5. Astrological judgement of the conjunctive months and the oppositions of the moon 6. The astrological judgement of each day 7. Judgement of the weather by some apparent signs 	<ol style="list-style-type: none"> 1. [Introduction] 2. Eclipses 3. Conjunctions 4. Signs of regions and cities 5. Ingresses

Some notes on the *Tratado da astrologia pratica* (BPMP Ms. 1895)

Differently from the texts by Delgado and Fallon, this anonymous set of lessons, focuses exclusively on the teaching of weather forecasting. For the most part it contains the same judgement methodologies, although it follows the common method for timing the effects of the ellipses. The most apparent difference is that, contrary to Delgado, and to some extent Fallon, the author gives to the conjunctions the same prominence as eclipses and seasonal ingresses. This is revealing of the different opinions among practitioners on the role of this methodology.

Despite favouring a Ptolemaic approach, he dedicates an entire chapter to them, presents an example chart (the conjunction of 1603), a table of previous conjunctions (1345 to 1603), and discusses some details of their computation. In this chapter, he draws extensively on Arabic authors, the main being Albumasar. The author also warns against the computations by Petro Ciruelo, who used the wrong period times for the conjunctions. As to their judgement, he advises the student to use, besides the figure of the time of the conjunction, the figures of the previous ingress of the Sun in Aries, and the figure of the lunation preceding the conjunction.

Nativities and human life

One of the greatest challenges for establishing a natural and Christian approach to astrology was its application to human births, the field known as nativities. Here prediction and forecasting were centred on human life and therefore impinged directly on the matter of free will. Any approaches to nativities had to be dealt carefully not to overstep the tight boundaries set by the Church on this matter. These limits could easily be crossed given that most traditional components of the astrological doctrine were not developed having in mind the Christian constraints on free will. Thus, many common concepts and applications of astrology would not be licit before the Church. The other facet of the problem was the foundations of the doctrine itself. Which doctrines could be natural and rational, which doctrines should be considered superstitious? In the same manner that the papal decree was clear in asserting that any component of astrology that interfered with human free will was forbidden, it also excluded any part of astrology that went beyond the natural influences of stars. As a result, it was paramount to establish clear natural reasons for the accepted astrological practices. Of the three fields of practice considered licit by the Church, agriculture, navigation and medicine, only in the last could the astrological study of nativities have a place; and even so only within a very narrow bandwidth: that of natural complexion and inclinations, as set out by Thomas Aquinas. Therefore, most of the doctrine on nativities presented by the three Jesuit authors revolves around their application in medical astrological judgements, seldom venturing beyond this. Yet, even considering all the problems raised by nativities, Delgado, Dias and Fallon each devote an entire treatise to this topic. The treatise by Dias is mostly a copy of Delgado's text, with a slightly different arrangement and a few additions, confirming the connection and continuation between the two authors. Fallon's is, as always, more succinct in this presentation of nativities, but for the most part discusses the same topics as his predecessors. He dedicates the last treatise

of his earlier text to nativities, dividing the topic into two treatises (four and five), the first addressing the judgement of nativities and the second the various techniques of prediction applied to them.

Fallon begins his treatise on nativities without further considerations, having discussed astrology's validity in the introduction of the lessons. But the other two authors add some important introductory considerations. Delgado begins his treatise on nativities by asserting the validity of the field with the authority of Ptolemy, who dedicated to the topic the entire third book of the *Quadripartitum* and part of the *Centiloquium*. Nevertheless, he recalls the exaggerations of the ancients regarding this matter and the necessary restrictions of the Church:

In ancient times, as we can see in Julius Firmicus and some other authors, mostly gentiles, men were much inclined to the judgement of births, exceeding the boundaries of reason and natural ways. In our times there is more moderation, but given that some, less considerate or little God-fearing, desire even more to exercise judiciary [astrology] in human births, which absolutely speaking it is not licit by the sacred canons. We would not even touch on [this topic] if the Supreme pontiff, Sixtus V, in his bull, did not allow the use of astrology in things pertaining to medicine; since for these to be practiced with perfection it is necessary to know the natural complexion of the individual, which depends on the figure of conception or of birth. And thus, submitting ourselves to any amendment and retraction that might seem necessary, we shall speak of this matter soberly without touching anything that might disturb the tranquillity of life and the spirit of any faithful, as the Holy Father determines.⁶⁴⁵

Dias follows Delgado's text closely, but also adds the considerations by Francisco Suárez and the Spanish Index of 1612, as to the lawfulness of the practice of nativities, as noted before. After all the religious matters are dealt with, the discussion moves to the matter of its 'scientific' or natural validity, which Delgado asserts to be supported by philosophy:

And we do not believe it to be at all presumptuous to speak also of the merely natural passions and inclinations of the soul which result from the complexion and constitution of the body, in the manner addressed by Aristoteles in his *Physiognomy*, and with him the philosophers that are not reprov'd. Where he proves that by the greater union of the intrinsic and substantial form with the body, there is among them such sympathy and affinity that the passions from the body produce in the soul effects such as those we see

⁶⁴⁵ Antigamente, como vemos em Júlio Firmico e alguns outros autores, maiormente gentios, foram os homens muito dados aos juizos dos nascimentos até excederem os términos da razão e via natural. Nestes tempos ha mais moderação, posto que em alguns pouco considerados, ou pouco tementes a Deus, se deseja ainda mais por quanto absolutamente falando, não é lícito por os Sagrados Canones exercitar a judiciária em nascimentos, nem nós os tocaremos se o Sumo Pontífice, Sixto Quinto, no seu motu próprio não permitira o uzo da astrologia em cousas pertencentes à medicina, porquanto para estas se haverem perfeitamente é necessário saber-se a compleição natural do sujeito que depende da figura da concepção ou do nascimento. E asi submetendo-nos a toda a emenda e retractação que parecer necessária, falaremos desta materia sobriamente sem tocar coisa que possa perturbar a quietação da vida ou do espirito de algum fiel, como o Padre Santo determina (Delgado, tr.3, introduction).

in the frantic and those less sober. And conversely, [we shall see] effects of the passions of the soul in the body, such as those experienced in excessive fear, sadness or joy.⁶⁴⁶

From this relation of the body and the soul comes the connection to the celestial influences insomuch as the body and its passions are to a greater extent moulded by them. Consequently, by means of the body's mutual convenience with the soul, these effects in the body will condition in the soul certain inclinations and behaviours; however, these indirect influences can always be tempered by the human mind and will. Here he is obviously paraphrasing Aquinas. Delgado continues to explain this relationship, between the stars, the body and the soul, supported by Pontano's arguments.⁶⁴⁷

In this manner the significations of the stars have reason as their companion, or better, as their moderator and president. This is explained further in the second chapter, adding that among the actions of the soul there are some which are proper to it, with no dependency on the body, and others which are dependent on the body; it is not convenient to astrology to deal with the first, but only with the second, and [thus] licitly, because they are exercised in respect to the body and corporeal organs which are under its jurisdiction.⁶⁴⁸

Since Delgado is a most fierce proponent of a natural astrological doctrine, he adds additional considerations concerning the natural components of the doctrine of nativities. He begins by dismissing the significations of the celestial houses. As already discussed above, these were the cornerstone of the traditional judgement of nativities, but their interference in subjects that were considered as infringing free will made them a problematic facet of astrology.

Delgado resolves this by following Ciruelo's dismissal of these significations. The reason presented is that they had no natural foundation being mere 'illusionary and imaginary things'.⁶⁴⁹ He also considers that to be absolutely thorough the astrologer must also take into account the weather conditions at birth, since the complexion of the air will have its effects on the newborn. Thus, besides the figure of birth, that is, the birth chart, the astrologer should also

⁶⁴⁶ Nem cremos será temeridade alguma dizermos também das paixões e inclinações meramente naturais da alma que resultam da compleição e constituição do corpo, no modo que Aristoteles na sua Fisionomia disse, e com ele os filósofos que se não reprimem onde prova que por a grande união da forma intrínseca e substancial, com o corpo há entre eles tal simpatia e conveniência que das paixões do corpo resultão na alma efeitos como vemos nos frenéticos e pouco sóbrios. E pelo contrário das paixões da alma, efeitos no corpo, como se experimentam nos temores, tristezas e alegrias excessivas. (Delgado, tr.3, introduction).

⁶⁴⁷ Pontano, *De rebus coelestibus*, bk. 2, chapters 1 to 4 (unnumbered).

⁶⁴⁸ De sorte que os significados das estrelas têm por companheira a razão, ou para melhor dizer, por moderadora e presidente. O que explicando mais no cap. 2º. ajunta que entre as acções da alma há humas próprias sem dependência do corpo e outras com dependência. Das primeiras não convem tratar a astrologia, porém das segundas sim, e licitamente porquanto as exercita mediante o corpo e órgãos corpóreos que são da sua jurisdição (Delgado, tr.3, introduction).

⁶⁴⁹ cousas meramente fantásticas e imaginações sem nenhum fundamento (Delgado, tr.3, introduction).

study the lunation previous to the birth, as well as the figure for the quarter in which it took place:

It is convenient for astrologers that intend to judge births to know the qualities and complexion of the air at the time someone is born. For, as it is natural and inevitable that the air is altered in some way by the influence of the superior causes through their movements and light, so too [are altered] the bodies surrounded by and clothed in this same air; and even more so when they are born, because at that time they are most sensitive and most delicate. Thus, it is not only necessary to know what prognosticates the figure of the complexion of the air, calculated for the lunation or quarter of the Moon, but also that of the quarter of the year, whether spring, summer, autumn or winter; even considering, as we said [before], that the knowledge of the figure of the quarter [of the Moon] is dependent upon that of the month, and [this is in turn, dependant on] the quarter of the year. Besides this, the climate [i.e. region] in which the creature is born, [should also be considered]: whether in Portugal or another kingdom, whether in Lisbon or in another place of a different temperament of the heavens. Hermes, quoted from Ciruelo, says that if the Moon or Mercury in the figure of the beginning of the year is unfortunate, the bad complexion and disposition of the air will cause many of those that are born in that year, some more, others less, to be affected by falling sickness, and to be commonly of little judgement.⁶⁵⁰

This is of course a precept that most practicing astrologers would not follow due to the numerous calculations and judgements involved. For each nativity studied the astrologer would need calculate also the figures for the quarter of the year (the season), lunation, and quarter of the Moon immediately preceding it, and make the judgement for each of them. This would provide the astrologer with the worldly conditions and the complexion of the air surrounding the birth. However, despite the extensive calculations and perhaps superfluous detail, the idea respects the natural precepts favoured by Delgado. It considers the natural effects of larger scale celestial configurations, affecting the conditions of the World, upon the individual configurations involved in a human birth. By recommending this level of study Delgado is also connecting the doctrine of weather forecasting with that of nativities, reinforcing the natural link between the two applications of astrology, and at the same time, consolidating the sequence in which the doctrine is presented in the lessons.

⁶⁵⁰ Isto pressuposto, convem que o astrólogo que houver de fazer o juízo de nascimento saiba as qualidades e compleição do ar quando algum nasce, porquanto naturalmente e necessário que alterado de qualquer maneira o ar por meio do influxo das causas superiores, com seus movimentos e luzes, se alterem também os corpos arodeados e vestidos do mesmo ar maiormente quando nascem, que são tenrríssimos e delicadíssimos. Antes não somente é necessário saber o que pronóstica a figura da compleição do ar levantada para a luação, ou quarteirão da ♃ senão também a da 4.^a do ano, se é Primavera, Estio, Outono, Inverno, ainda que como dissemos o conhecimento da figura do quarteirão já vem dependendo do mês e da quarta do ano. E além disto, o clima onde a criatura nasce, se é em Portugal ou noutro reino, se em Lisboa ou noutra terra de diverso temperamento do céu. Hermes, citado de Ciruelo diz que se a ♃ ou ♄ na figura do princípio do ano forem infortunados, a ruin compleição e desposição do ar fará que muitos dos que nascerem nesse ano, uns mais e outros menos, sejam contreitos de mal caduco, e ordinariamente pouco sábios e de pouco juízo (Delgado, tr.3, introduction).

Table II.19 – List of contents of the Jesuit texts on nativities

Delgado	Dias	Fallon (text 1)	Fallon (text 2)	Sempill
1. On the figure of conception and birth	1. On the figure of conception and of nativities	1. At what time the figure of birth should be erected	1. For which time the figure is erected, whether the time of conception or that of birth	1. Life of the native: - Ascendant and its lord - Luminaries - Hyleg and alcocodem - Accidents: Directions, profections, revolutions and transits
2. Of the form or figure, complexion, stature, and bodily qualities of the native	2. How to the time of birth can be known through the time of conception	2. On directions	2. How to seek the true hour of a nativity	2. Lord of the figure
3. Of the time in which the native will have some infirmity or danger from it	3. On firdaria or planetary rulership	3. How is obtained the lord of the figure in one movement	3. Astrological judgement of life	3. Temperament
(Treatise 4)	4. On the judgement made on the effects of the planets in the conception of the child	4. How to judge the life of the native	4. Astrological judgement of the complexion and natural inclination of the native	4. Form and stature, habits
[1] Fourth and last treatise. For the judgements of Medicine	5. How to rectify the figure of birth	5. How to judge the stature and temperament of the native	5. Astrological judgement of diseases	5. sickness and natural death
	6. On the almutem or lord of birth	6. How to judge the illnesses of the native	6. How to judge the other accidents of the figure	
	7. On the hyleg and the alcocodem	7. How to judge the other accidents and effects of the native	7. Judgement that can be made of the native's physiognomy	
	8. On the form, figure, composition, stature and corporeal qualities of the native	8. The judgement that can be done of the native's physiognomy	(Treatise 5)	
	9. On the physiognomy of the native, the knowledge of forms, figure and stature, etc.		1. What manner of thing is a direction, significator and promisor	
	10. On some things to be respected in the judgements of physiognomy		2. How directions are made	
	11. On some rules for the judgement of infirmities		3. How the degrees of the directions are reduced to time	
			4. What manner of thing is annual profection and how it is practised	
			5. How to judge annual profections	

This idea is far from being a new concept in astrological theory, having been discussed by Ptolemy and many other authors.⁶⁵¹ However, its application appears to be more theoretical than practical. So, Delgado attempts to ground it in the practical application, by highlighting that a human nativity occurs within a chain of many events, and that this natural relation of the general with the particular should also be considered. Following Ptolemy, he also extends this consideration to future circumstances of the native's life, as one might be susceptible to a universal condition of the air due to the universal circumstances surrounding the birth. Yet, he does note that most authors consider, as does Ptolemy, that this event must be signalled in the revolutions and directions of the individual's nativity. Neither Dias nor Fallon discuss these particulars.

Nativity vs conception

After the appropriate legitimisation of the practice of nativities, the first thing to be addressed in all lessons is the nativity itself. Here a question arises as to whether one should consider the moment of conception or that of birth. In the medieval tradition this is usually not a central question, but this was one of the main arguments used by the opponents of astrology to criticise the validity of nativities and with it any astrological examination of human life. Therefore, this becomes an important discussion to begin with. As usual, Fallon is quite succinct in his approach:

Now that the doctrine of the preceding treatises has been established, the first doubt that now presents itself is: for what time should the figure of the one who is born be cast? There is every reason to question whether if the time of conception, or the time of birth should be chosen. Because it is in the hour of conception that man first receives his being, it might appear that the influences that govern in this time should be the ones with more power to bestow him this or that complexion. The common opinion among authors is rather to choose the hour of birth. The reason being, that although the time of conception precedes it, it is in the first [i.e., at birth] that Men receives his vital aura and makes his entrance into the World, and begins to be a separate entity; until then he is as if part of his mother and does not operate directly.⁶⁵²

⁶⁵¹ For example, in *Tetrabiblos* 1.2 Ptolemy discusses this connection, relating weather and human conditions. Following the same line of thought, Albumasar debates with more detail this relationship *The Greater Introduction*, 1.2, see Abū Ma' šar, *The Great Introduction to Astrology*, 1:53–79.

⁶⁵² Suposta a doutrina dos tratados atrás, a primeira dúvida que agora se oferece é a que tempo se deve levantar a figura de um nascido? Toda a razão de duvidar é, se se deve escolher a hora da conceição, ou se a hora do nascimento. Pela hora da conceição faz, ser a primeira em que o homem recebe ser, por onde parece que as influências, que então reinam devem ser as mais poderosas para lhe darem esta ou aquela compleição. O comum dos autores é escolher antes a hora do nascimento. A razão é porque ainda que esta preceda em tempo a hora da concepção, contudo é a primeira esta em que o homem recebe esta aura vital, e faz sua entrada no Mundo, e com que começa a ser com ser próprio, porquanto até então é como parte de sua mãe, e não opera imediatamente (Fallon, tr.4, ch.1).

Delgado, however, living at a time when this matter was much debated, is sharper when presenting his case. Supported by the arguments of Bellanti, Ciruelo and Haly Abenrudian he advances the importance of the nativity figure over that of conception, and takes the opportunity to clarify the misunderstandings of the critics of astrology, among whom was his fellow Jesuit, Benito Pereira, who wrongly stated that Ptolemy favoured the conception figure:

Lucio Bellanti in question fourteen, second article, Pedro Ciruelo, book three, chapter one, [and] Haly Abenrudian in his commentary at the beginning of book three by Ptolemy, debating which one is more efficient and should be absolutely called constellation, or as they say, the horoscope of a man – whether it should be judged by the figure of the conception in the mother's womb, or by the figure of the hour, in which by being born the creature began to experience by itself and not as part of the mother, the vital aura and the influences of the World. They conclude with good reasons, that for sake of brevity we will not disclose, [that it is to be] the figure of birth. And this is truly the opinion of Ptolemy at the beginning of the [above] cited third book, that was wrongly understood by Benito Pereira at the end of the third chapter on the second book of Genesis, where he states, that in the aforementioned place, Ptolemy prefers the figure of conception to the figure of birth.⁶⁵³

The preference in all three authors is evidently for the nativity figure (as is the case for almost all practicing astrologers since antiquity). Nonetheless they recognise the importance of the figure of conception and proceed to explain its doctrine and how it interconnects with the figure of birth. This relationship, too complex to fully detail here, is based on the premise indicated in sentence 51 of the *Centiloquium*. This states that the position of the Ascending degree at birth corresponds to the degree of the Moon at the moment of conception, and the degree of the Moon at birth is the same as the Ascendant at the time of the conception. From this assumption a technique was developed to determine the exact moment of conception based on the position of the Moon regarding the horizon in the birth figure. This is known as the Trutine of Hermes or the *mora*, and it serves to both calculate the figure of conception and to rectify the time of birth based on this same calculation.⁶⁵⁴

⁶⁵³ Lúcio Belancio na questão 14, artigo 2.º, Pero Ciruelo, livro 3.º, cap. 1.º, HebenRodão no seu comento no princípio do 3.º livro de Ptolomeu, altercando qual é de mais eficácia, e qual se deve chamar absolutamente constelação, ou como dizem, horóscopo de um homem, se há que se julgar por a figura do tempo da concepção no ventre da mãe, ou por a figura daquela hora em que nascendo a criatura começou a gozar por si, e não como parte da mãe, da aura vital e influências do Mundo. Concluem com boas razões, as quais por brevidade não apontamos, que a figura do nascimento. E na verdade é sentença de Ptolomeu no princípio do 3.º livro citado a quem entendeu mal, Bento Peireira no fim do 3.º capítulo sobre o 2.º livro do Genesis, onde diz que Ptolomeu no próprio lugar antepõe a figura da concepção à figura do nascimento (Delgado, tr.3, ch.1).

⁶⁵⁴ In a summarised way, the method considers that the period of gestation has a minimum of 258 days and a maximum of 280 days, the average being 273 days. According to the distance of the Moon to the ascendant in the nativity, and if it is above or below the horizon. If the Moon is the Ascendant the gestation is considered average of 273 days; otherwise, when the Moon is above the horizon the value of 258 is given to the Descendant and for each 13° degrees it is distant from the Ascendant, one day is subtracted; if the Moon is below the horizon, then the maximum value of 280 days is given to the Descendant and for each 13° the Moon is apart from the Ascendant, one day is added to the average value. Having these

Although in standard astrological practice the chief application of the conception figure and the trutine is the rectification of the time of birth, as Fallon teaches, Delgado and Dias expand their discussion of this topic by addressing the medical applications of the figure of conception. They consider that its judgement provides the general complexion of the created being regarding intrinsic and essential things.⁶⁵⁵ The figure of conception is also related with to a system of planetary time lords that correlates each month of pregnancy to a planet (see table).

Table II.20 – The planets and the months of pregnancy (as in Delgado)

Month	Planet	Effect	Organs and bodily functions
1 st	♄ Saturn	Retain and condense.	Congéal, thicken, dry and establish matter.
2 nd	♃ Jupiter	Growth and nutrition.	Complexion, order of organs, breathing.
3 rd	♂ Mars	Natural heat, child begins to move.	Natural heat, motion of the blood, nutrition.
4 th	☉ Sun	Vivification, heart and growth.	Vital spirits, heart, brain, stomach.
5 th	♀ Venus	Nutrition and augmentation.	Physiognomy, symmetry, composition.
6 th	☿ Mercury	Distinction and division of body parts.	Tongue, memory, imagination, senses.
7 th	☾ Moon	Further distinction and human traits.	Lungs, arteries, porousness (circulation).
8 th	♄ Saturn	Consolidation. Dangerous month.	(same as 1 st month)
9 th	♃ Jupiter	Further growth.	(same as 2 nd month)

The first month is given to Saturn, the second to Jupiter and so on; the Moon is attributed to the seventh month and afterwards the sequence repeats, with the eighth month attributed to Saturn, and the ninth and last month to Jupiter. The good or bad condition of the ruling planet during the month it has domain over informs of the conditions of the native's gestation and of the parts of the body associated with that particular period.⁶⁵⁶ Still, Delgado and Dias advise that all these planetary significations, being universal causes, are conditioned by particular causes such as conditions of the father and the mother, and especially the nutrition and well-being of the mother during the pregnancy.

precepts into account, a calculation is made as to how many days the individual was in the mother's womb. From this is determined what was the position of the Moon at conception and the Ascendant of the nativity is adjusted accordingly.

⁶⁵⁵ They provide a method to ascertain the complexion through the figure of conception by taking into consideration the elemental qualities of the Ascendant, the Moon, the rulers of their signs, and planets in aspect to them.

⁶⁵⁶ On the use of this type of system see Charles Burnett, 'Planets and the Development of the Embryo', in *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. Gordon Reginald Dunstan (Exeter: University of Exeter Press, 1990).

Some authors extend the gestation period to the tenth month ruled by Mars, which is considered rare, and even to the eleventh month ruled by the Sun, although this is seen as a wonderous event. Children born under any of these two conditions would be more perfect. Having this in mind, Dias considers it appropriate to say something on the gestation of Christ, a matter that could be troublesome since it would infer that the planets had some influence in the process of incarnation. However, these associations of astrology and Christian narrative were not unusual, as seen in part two:

Here [we present] a curious doubt, which would not be proper for us to let go without touching it, and this is of Our Lord Christ: how long was he in the virginal womb of the purest virgin. Because, on the one hand, it seems that he should only have been in it for nine months, as this it is the middle range between those that stay less and those who say longer, and the middle is always the best and the surest. On the other hand, it seems that he should have stayed there more than the nine [months], since we have said (and it is certain) that the longer the child remains in the mother's womb, the more perfect and complete it comes out. And the body of Christ Our Lord when he was born was one of the most perfect that in this world ever was. However, Master Ciruelo holds that Christ Our Lord was in the Lady's womb for nine months, and six days of the tenth [month], and for this reason the Church, psalm 18, sings *procedens de thalamo suo exultavit ut gigans ad currendam viam suam*.⁶⁵⁷

These planetary periods applied to the gestation months are called by the authors 'firdaria', a word that means period and that at this time was generically used to designate any amount of time or period of life associated with a planet.⁶⁵⁸ However, firdaria can also designate a specific method of planetary periodisation used for forecasting in nativities, which both authors mention briefly and which Delgado explains in more detail in the chapter on the methods of prediction.⁶⁵⁹ By doing this they are equating the planetary periods of gestation, arising from

⁶⁵⁷ Aqui huma duvida curiosa, a qual não he bem que deixemos passar, sem a tocar, e he de Christo Nosso Senhor, quanto tempo andou no ventre virginal da purissima virgem. Porque por huma parte parese que somente devia andar os 9 meses, porquanto he o meio entre os que andam mais e os que andão menos, e o meio he sempre o melhor, e o mais seguro. Por outra parte parece que devia andar mais dos nove porquanto temos dito e he certo que quanto mais a criança se detem no ventre da mai, tanto mais perfeita e acabada say. E o corpo de Christo Nosso Senhor quando nasceu foi mais perfetios que nunqua no mundo ouve. Porém Mestre Ciruelo tem que Christo Nosso Senhor andou no ventre da Senhora 9 meses, e 6 dias do 10.º e que por isso a igreja ps. 18, canta *procedens de thalamo suo pudoris aula regia gemine gigas substantiae alveris ut currat viam* (Dias, tr.3, ch.2). Note: the psalm's Latin in the quote appears to be corrupt since it does not correspond entirely to the original.

⁶⁵⁸ The word 'firdaria' (originally *fardār* or *firdār*) appears to be is of Persian origin, meaning 'period'.

⁶⁵⁹ In this system each planet governs a certain number of years: 10 years for the Sun, 9 years for the Moon, 13 to Mercury, 8 to Venus, 7 to Mars, 12 to Jupiter, and 11 to Saturn. In a diurnal nativity the sequence begins by the Sun and follows the descending order of the planetary spheres: Venus, Mercury, Moon, Saturn, Jupiter and Mars; in a nocturnal nativity the sequence begins by the Moon, then Saturn, Jupiter, Mars, the Sun, Venus and Mercury. Each of these periods is further subdivided into seven equal sub-periods. The nature of the planets ruling the period and the sub-period and their strength and weakness in the natal figure determines the conditions of the native during that time. The medieval descriptions of this system added at the end of the planetary sequence the lunar nodes attributing 3 years to the North Node and 2 to the South Node. Delgado and Dias omit the Nodes in this first presentation of the method, but Delgado mentions them later in the treatise.

the conception figure, with the planetary periods of life, the firdaria, related to the nativity figure; in practice they do not appear to give this much importance.

Lifespan

It is in this context of planetary time lords that Delgado and Dias also mention another system called the years of the planets. This method associates each planet to three measures of years, greater, mean and minor, normally applied in the assessment of a person's lifespan (see table).⁶⁶⁰

Table 11.21 – The years of the planets⁶⁶¹

	Planet	Greater	Mean	Minor
♄	Saturn	57	43 ½	30
♃	Jupiter	79	45 ½	12
♂	Mars	66	40 ½	15
☉	Sun	120	69 ½	19
♀	Venus	82	45	8
☿	Mercury	76	48	20
☾	Moon	108	66 ½	25

This involves the determination of the alcocodem, that is, the planet which signifies the length of years of the native's life span. This doctrine is present in one form or another in most astrology books since the Classical Period and in general terms the alcocodem is considered to be one of the planets which has dignity over the degree of the hyleg, the planet that is the significator of life. This is usually one of the so-called hylegical places: the Sun, the Moon, the Ascendant, the Lot of Fortune and the degree of the lunation preceding birth. Following Ptolemy's nomenclature in the *Quadripartitum*, the hyleg is sometimes called the apheta, and the alcocodem, the anareta. The precise method of computation of these two points is debated by authors over the centuries and there are many small variations in technique.⁶⁶²

⁶⁶⁰ There is still another length called maximum or greatest, that stretches far beyond the duration of human life and it was apparently applied to calculate the extent of dynasties and kingdoms. The greatest years of the planets are: Saturn, 265 years; Jupiter, 427 years; Mars, 284; Sun, 1461; Venus, 1151; Mercury, 480; and the Moon, 520 years. See for example, Abū Ma'shar, *The Great Introduction to Astrology*, 1:801.

⁶⁶¹ Some authors attribute 39 ½ years to the Sun and the Moon, Abū Ma'shar, 1:801.

⁶⁶² To be deemed hyleg the five hylegical points must comply to a set of specific conditions: to be posited in an hylegical place (the houses above the horizon for the Sun, and any angular and succedent house for the Moon; the eight, sixth and twelfth houses are never hylegical places), in a sign of its sect, essentially strong, etc. By day the selection begins with the Sun, then the Moon, then the Ascendant; the Lot of Fortune or the lunation are only selected when all these have failed to fulfil all the necessary conditions; by night it begins with the Moon, then the Sun, then the Lot of Fortune, leaving the Ascendant and the lunation as last options. The alcocodem is selected among one of the planetary rulers of the degree of the hyleg, usually that which is stronger in the figure; some authors require it to have an aspect to the hyleg. The method has many minutiae and there are some variations in the selection of both the hyleg and the alcocodem. For example, Ptolemy's method is different from this general method used by almost all other authors, since it allows a planet to be selected as an hyleg; see *Tetrabiblos* III.10.

Each of the Jesuit authors has a slightly different stance on this matter. Delgado only lists the years of the planets and straightforwardly states that he will not deal with the alcocodem ‘which nowadays is forbidden’. Yet, he provides a very general idea of how it works and mentions it again later in the text as an indicator of the native’s lifespan when discussing directions. Dias equally states it as a forbidden topic, and although he cautions that this judgement is difficult, obscure and very uncertain, he continues to debate it and discusses the general principles of the technique, offering an entire chapter on the hyleg and the alcocodem, which is not part of Delgado’s course. The chapter appears to be incomplete, but still gives a considerable account of the subject, part of which Dias states that he will teach ‘*viva voce*’ for the sake of brevity.⁶⁶³

Fallon has a different posture, presenting the method as a normal part of the judgement of the nativity and making no reference to its prohibition. He addresses the alcocodem in the last chapter of the second treatise – on the principles of astrology – mentioning it again in the chapter on the life of the native. He lists the years of the planets and offers a general explanation of the concept and how it is applied. Similarly, his contemporary, Sempill, also includes the hyleg and the alcocodem among the techniques used to judge the life of the native. It appears that, despite the apparent dubious status of this doctrine and its condemnation, the human life span was for the most part considered a natural consequence of the bodily conditions and thus it seems that it was up to the author to decide whether to include it or not in his exposition of astrology. It must be noted, however, that the Jesuit authors are careful with this topic and only explain its general principles, never venturing into any lengthy discussion of the matter.

Rectification

The accuracy of the judgement of a nativity, particularly the methods of prediction, depended on a precise time of birth, which could be difficult to obtain. The astrologers were well aware of the problems of noting the time of birth, and several methods were used to adjust the figure to the correct time, a process called ‘rectification’.⁶⁶⁴ The Jesuit authors were well of this matter. They mention that when the birth time is indeed noted it is most often only an approximate time, and even when a clock is used, there is no guaranty that it displays the correct time; besides, few people are dedicated enough to note the birth time with precision. Therefore,

⁶⁶³ Dias, tr.3, ch.7.

⁶⁶⁴ This process is described in almost all major primers of astrology, from Ptolemy (*Tetrabiblos* III.2), to the Arabic and Latin medieval tradition, and the Early Modern authors.

to overcome this problem the nativity has to be rectified. However, if the error of the birth time exceeds one hour, one should not bother to rectify it, as it would be difficult and uncertain. In these cases, the astrologer should consider only a broad judgement of the complexion and inclinations; the knowledge of the almutem or lord of the figure must be deduced by the native's deeds and likings, as well as from his physical appearance and other inclinations. If the error is smaller than one hour, then rectification can be applied. The standard practice includes three methods, which can be found in any astrology book:

The first is the figure of conception which, using the above-mentioned computation of the time of gestation, adjusts the dubious hour of birth to fit the parallels between the Ascendant and the Moon of both the conception and the nativity figures.

The second method is called the animodar. It is based in the teachings of the second chapter of the third book of the *Quadripartitum* and *verbum* 34 of the *Centiloquium*.⁶⁶⁵ The doctrine of the animodar assumes that there is a direct relationship between the planet which is the almutem over the degree of the lunation immediately preceding birth and the position of one of the angles in the figure.⁶⁶⁶

The third method is to consider the accidents of the native, i.e. the significant events in the life of the individual. Those events which have already occurred can be measured using a technique of prediction known as directions (which will be discussed further on). This is made, for example, by moving the ascendant degree through the zodiac until it makes conjunction or aspect to a planet and then establishing a date for this occurrence. This is then correlated to an event of the native's life. If there is a discrepancy in the date computed by the directions and that of the event itself, the degree of the Ascendant is adjusted so that the direction takes place in the correct date. This is explained in detail by Delgado and Fallon when they address the techniques of prediction and discussed below.

⁶⁶⁵ *Tetrabiblos* III.2 and *Centiloquium* 34.

⁶⁶⁶ In general terms, the method of the animodar rectifies the nativity figure considering that the degree of the planet which is the almutem over the degree of the lunation immediately preceding birth is numerically the same as one of the angles (usually the Ascendant and the Midheaven, although Delgado and Dias also consider the other two). Considering the degree of the almutem of the lunation, the angle which bears the closest value to the degree of the almutem is adjusted to the same degree and the new birth time is noted. For example, if the degree of the almutem of the lunation is eleven degrees of Taurus, and in the figure the Ascendant is at twenty-five degrees of Cancer and the Midheaven at nine degrees of Aries, then the degree of the Midheaven which is closest in number would be rectified to eleven degrees of Aries. There are some differences of opinion as to which angle to select, whether it is the one which is closer numerically, or that which is closest by signs and number of degrees. Fallon uses the first method, as Delgado and Dias also appear to do, but this is not entirely clear since they do not provide an example.

Judging the nativity

Once the figure of the nativity is rectified the authors proceed with teaching the methods for its judgement. As in the judgement of the figures used in weather forecasting, this entailed first the determination of the strongest planet, the lord or almutem of the figure; in the case of the nativity this was then followed by a study of the complexion and inclinations of the native, the physiognomic traits, and the predispositions towards sickness or health. All authors address these matters but choose somewhat different approaches.

The almutem of the figure

Delgado and Dias begin the judgement of the nativity by calculating the almutem of the figure. This planet is considered to signify the overall inclinations of the native, affecting his general behaviour, actions and appearance; its calculation is considered standard procedure in any astrological judgement.⁶⁶⁷ They present the several opinions regarding the calculation of the almutem of the figure such as those of Firmicus, Origano and Cyprián Lvovický. They elect to compute the almutem as the planet which gathers the most accidental and essential dignities in the figure; among these, however, they give precedence to the planet that has the most dignities in the five heliacal places. This methodology is unusual since it mixes two different methods. In the medieval tradition the almutem was computed by most authors as the planet with the greater number of dignities in the five hylegical points, since these signify life and one of them is elected as the main giver of life, the hyleg. On the other hand, most early modern authors prefer to calculate the almutem by weighing the essential and accidental dignities of all the planets in the chart, attributing the role of almutem to the strongest. It is yet to be studied how this transition took place. Delgado and Dias offer a relevant testimony to the change in the concept of the almutem of the figure, since they clearly use the modern version by choosing it from the most essentially and accidentally dignified planet, but still include the five hylegical points of the medieval tradition to validate the final result.

Fallon discusses the calculation of the almutem of the figure at the end of the section on the principles of astrology. Following the same line as most of authors, he defines it simply as the planet with the most essential and accidental dignities in the figure. Having already discussed this topic as well as that of the hyleg and alcocodem in an earlier section, Fallon begins the judgement of the nativity in a different and much more succinct manner. He begins

⁶⁶⁷ The almutem of the figure is also known as the lord of the figure or lord of the geniture, and occasionally it is also called almutem or lord of the nativity, in the specific case of human birth. All these terms describe a planet which is an overall significator of the figure, but its computation may vary according to author, as well as chronologically.

by addressing ‘the life of the native’. This involves a general analysis of the tendencies shown in the birth figure based on the ascending sign, its directions to malefic places, the strength of the ruler of the ascendant, and the luminary of the hour (that is, the Sun in a diurnal figure and the Moon in a nocturnal figure). He gives as an example the nativity of Pope Paul III, who lived successfully to the age of eighty-one. Despite this being a common example chart in most astrology books of this period, the choice may not be coincidental since Paul III was the pope that approved the Society of Jesus in 1540. This is also one of the example charts chosen by the polish Jesuit Jan Smogulecki for the Chinese astrological text *The Pacing of the Heavens* (see Part Two).⁶⁶⁸ Fallon also demonstrates other configurations, both positive and negative, this time using his example chart calculated for the year the lessons took place, 1639.

Complexion, physiognomy and inclinations

The next topic to be discussed is the complexion and bodily qualities of the native. According to Delgado and Dias, the complexion, being either sanguine, choleric, melancholic or phlegmatic, or a mixture, is obtained by considering the qualities of three points in order of importance: first the Moon, considering its sign position, its quarter and any planets in aspect to it; the second is the sign of the Ascendant; and the third is any planet in aspect to the ascending degree. Unfortunately they do not present more detailed examples; the computation is demonstrated with an example taken from Ciruelo and the student is again reminded that, since universal causes are modified by particular causes – in this case the parents and the land where the person is born – these must be taken into account in the judgement.⁶⁶⁹ Similar instructions are presented in the contemporary work by Magini published in 1607 as well as those by Origanus, showing that modernity which is characteristic of the teaching of Santo Antão also applies to astrology.⁶⁷⁰

Fallon appears to use a slightly different method from that of his predecessors: the qualities of the signs of the four main angles of the chart (giving precedence to the Ascendant and the Midheaven); the qualities of the strongest planets in the chart; the Ascendant and the

⁶⁶⁸ Standaert, ‘European Astrology in Early Qing China: Xue Fengzuo’s and Smogulecki’s Translation of Cardano’s Commentaries on Ptolemy’s’, 60.

⁶⁶⁹ The calculation of temperament is discussed in Ciruelo, *Apotelesmata astrologiae christianae*, bk. 3, chap. 4.

⁶⁷⁰ See Giovanni Antonio Magini, *De astrologica ratione, ac usu dierum Criticorum, seu Decretorum, ac praeter ea de cognoscendis & medendis morbis ex corporum caelestium congitione* (Venetia: Haeredem Damiani Zenarii, 1607), fols 42v–43r; or *De astrologica ratione, ac usu dierum Criticorum, seu Decretorum, ac praeter ea de cognoscendis & medendis morbis ex corporum caelestium congitione* (Frankfurt: Wolfgang Richeter, 1608), 66–68. The *ephemerides* by Origanus have several editions.

planets conjoining it; the Moon with its good or bad disposition.⁶⁷¹ He uses the 1639 example chart to demonstrate the method. However, this appears to be an abbreviated version of the method because in the text of 1630 a table is presented with a more complex version, which considers several other components of the figure (fol. 169v): the Ascendant, its ruler, and planets in aspect to the Ascendant; the Moon's sign and quarter, its dispositor, and planets in aspect to the Moon; the quarter of the year; the almutem of the figure; fixed stars near the Ascendant (Figure 11.5).⁶⁷²

Significadores	calor	frio	humido	seco	
horoscopo II	calido	o	humido	o	o
♂ Almutem	calido	o	o	o	o
♂ Almutem horoscopo III	calido	frio	humido	seco	o
♂ h. a horoscopo II	o	frio	humido	o	♂
♂ III	calido	frio	humido	seco	o
♂ Senher da III	o	frio	humido	o	o
♂ ♀ III	calido	frio	humido	seco	o
♀ a III ♀ ex II	calido	o	o	o	o
♂ ♀ a III de III	calido	o	humido	o	♂
a quarta do anno	calido	o	humido	o	o
o Iner. do navio III	calido	o	o	o	o
Orion	calido	o	o	seco	o
♂ h. a horoscopo III	o	frio	o	o	o
Em suma	10	6	8	4	o

Figure 11.5 – Temperament table from Fallon's *Astrologia pratica* (1630), BNP Cod. 2127, fol. 169v.

⁶⁷¹ This appears to be a variation of the instructions given by Origanus in his *Ephemerides*, see Origanus, *Ephemerides Novae Annorum XXXVI*, 333.

⁶⁷² Although further research is needed on this topic, it appears that there was never a standard astrological method for the assessment of the complexion. All authors mention the importance of the Moon, its sign and quarter, and its aspects to the other planets, as well as the Ascendant, planets aspecting it and its ruler; other common points included are the season of the year and the almutem of the figure. However, the priority and emphasis given to each component varies somewhat according to different authors; there are also differences of opinion as to how the qualities are to be considered, for example, in the case of planetary aspects some authors favour the qualities of the planet itself, while others prefer to consider the qualities of the sign where the planet is placed. The computation of the qualities can also be different, either considering the complexion of each component by itself, or alternatively, counting the totals of hot, cold, moist and dry attributes to reach a final decision. In the few examples provided all authors apparently consider each component by itself, although Fallon's method is not entirely clear due to the differences of the two texts.

This version is not only closer to that of Delgado and Dias, but also comparable to those found in the more extensive printed texts, such as the 1609 edition of Origanus' ephemerides, as well as in the earlier book by Garcaeus' *Astrologiae methodus* (1576).⁶⁷³ Although the latter is not quoted by any of the Santo Antão teachers, it is cited by Hugh Sempill;⁶⁷⁴ see Figure 11.6 and Figure 11.7.

Fallon's latter text is an abridged version of his earlier lessons, which explains the difference. Despite the slightly different approach of each teacher, the instructions provided in the lessons of Santo Antão are a variation on those provided many of the astrology books and ephemeris of this period.

COLLECTIO TESTIMONIORVM HAEC EST:				
	CALID.	FRIGID.	HUMID.	SECCVM.
Horoscopi signum ♈.	Calid.	o	Humid.	o
♀ domina Ascendentis,	Calid.	o	Humid.	o
♂ in Horoscopo,	Calid.	o	o	o
Sol in Ascendente	o	Frigid.	o	o
☿ * part. ad Ascend.	o	Frigid.	Humid.	o
In ♏	Calid.	o	o	Siccus.
Archirus { in Ascendente	{ Calid.	o	o	Siccus.
Spica ♎ }	{ Calid.	o	Humid.	o
☽ per se considerata,	Calid.	o	o	o
☿ Dominus ☽ & intemp.	Calid.	Frigid.	Humid.	Siccus.
♂ part. ad ☽ am	Calid.	o	o	o
Ex ♈,	Calid.	o	Humid.	o
♂ ☽ part.	o	Frigid.	o	o
Ex ♎	o	Frigid.	Humid.	o
♂ ♎.	Calid.	o	Humid.	o
Ex ♎.	o	Frig.	o	Sicc.
Dominus genituræ ☿ . intemp.	Calid.	Frigid.	Humid.	Siccus.
Particeps ♎ . intemp.	Calid.	Frigid.	Humid.	Siccus.
COLLIGANTVR TESTIMONIA.				
Collectis Qualitatibus per additionem, Caloris sunt XIII. Frigoris sunt 8.				
Humidi sunt 10. Sicci sunt sex.				

Figure 11.6 – Temperament table from Johannes Garcaeus, *Astrologiae methodus* (1576), p. 50.

⁶⁷³ Johannes Garcaeus, *Astrologiae methodus* (Basel: Henric Petrina, 1576), 50; David Origanus, *Novae motuum coelestium ephemerides Brandenburgicae, annorum LX, incipientes ab anno 1595, & desinentes in annum 1655* (Frankfurt: Ioannis Eichornij apud Davidem Reichardum, 1609), 568.

⁶⁷⁴ Sempill, *De mathematicis disciplinis Libri duodecim*, 240.

Collectio testi- moniorum in una genitura.		Hinc collectis testimoniis significatorum:			
Significatores		Calor	Frigus	Humid.	Siccitas
Horej opus ♄		Calid.	○	○	Siccitas
☉ Dominus horoscopi		○	Frigid.	○	○
♄		Calid.	Frigid.	Humid.	Siccitas
□ ♄ ad ascendens in m		○	Frigid.	Humid.	○
* ♄ ad ascendens ex ♄		Calid.	○	Humid.	○
☾ in ♄		Calid.	Frigid.	Humid.	Siccitas
♄ Dominus ☾		○	Frigid.	Humid.	○
♄ ☉ & ☾ in ♄		○	Frigid.	○	○
□ ♄ ad Lunam ex ♄		Calid.	○	Humid.	○
Quarta anni hyberna		○	Frigid.	○	Siccitas
Dominus genitura ♄		Calid.	○	Humid.	○
		6	7	7	4

Figure II.7 – Table from David Origanus, *Novae motuum coelestium ephemerides* (1609), p. 568.

The next topic to be presented is that of the native's appearance and stature. Again, there is a slight difference in the presentation of the topic. Delgado and Dias discuss it after addressing the complexion. The approach is quite straightforward. First, they layout the method for the study of the native's physiognomy by listing the parts of the chart to be considered: the sign of the Ascendant, the sign of the Moon and the sign of the almutem of the figure. The sign of the Ascendant is considered to be the base for judgement, while the other two serve as moderators, modifying the signification of the Ascendant. Then the authors list the physiognomic attributes of the twelve signs and the seven planets, as well as several canons for the judgement of thinness and corpulence, of beauty, and of colour. Once more the authors emphasise the need to consider the parents and ethical background. Whenever relevant, the physiognomy as well as complexion is associated with medical conditions, thus keeping the study of nativities within the context of medicine.

As complexion and physiognomy are related to one another, so are the inclinations of native. Delgado and Dias do not provide an exact method to assess inclinations but connect it to the planets in the Ascendant of the figure, the ascending sign, the planetary ruler of the Ascendant, planets in aspect to the Ascendant, the almutem of the figure, and fixed stars conjunct with the ascending degree. Then there is offered a list of the various attributes of the planets as to appearance, parts of the body, colours, odours, diseases, and inclinations as to behaviour and occupations. Here are displayed several of the attributes of the signs that were missing in Delgado's foundation section and that had been presented by Dias. Noticeably,

Delgado chose to display them in their proper context, when they were needed for judgement. Thus, at the end of the listing he points out that some of these significations are to be applied to planets in the tenth house which has domain over profession and offices, and those in the sixth house, which concerns illnesses. This appears to contradict his posture on the houses, but he could be only explaining the reason for these commonly listed attributions, while not endorsing them.

Fallon also discusses the physical traits after the assessment of complexion, linking the two topics. He does not offer a structured method for its determination, providing only some basic instructions regarding largeness, proportion, beauty and colour of the body. Fallon discusses very briefly the connection between complexion and natural inclinations, as well as the evaluation of the native's ingenuity and ability. Although he does not provide any rules or methods to determine them, he mentions Pontano and Cardano as sources for this doctrine. The topic of physiognomy is taken up in more detail in the last chapter of the fourth treatise, but here Fallon presents a different approach. Instead of predicting the native's physical traits through the nativity chart, he discusses the appearance of each part of the body, from head to feet, providing a connection between their form and inclinations, temperament and the planets.

In practice, while physiognomy was perhaps a more secondary matter (applied mostly in medical matters and physical stamina), together with temperament and ingenuity (*ingenium*) they played an important role in Jesuit life. It is well-known that the Jesuits superiors used these attributes to evaluate the personality and abilities of their members and candidates. Many of the society's catalogues contained an evaluation of the member's physical appearance, temperament and talent, so that the superior could be better informed as to the most suitable task to attribute him.⁶⁷⁵ If astrology played some part in these attributions it is still a matter for future research, since this evaluation could have simply been made through observation of the subject. Yet, it is interesting to note the forefront inclusion of their methods of determination in the nativities section.

⁶⁷⁵ Cristiano Casalini, 'Umore, troppi umori. Temperamenti e malattie dell'anima nella formazione dei primi gesuiti', *Rassegna di Pedagogia* 71, no. 3–4 (2013): 331–50; and 'Discerning Skills: Psychological Insight at the Core of Jesuit Identity', *Exploring Jesuit Distinctiveness*, 2016, 189–211; see also Marina Massimi, 'Engenho e temperamentos nos catálogos e no pensamento da Companhia de Jesus nos séculos XVII e XVIII', *Revista Latinoamericana de Psicopatologia Fundamental* 11, no. 4 (2008): 675–87.

Medical astrology

This is a topic which is present in one form or another throughout the section on nativities, since their study can only be lawful within medical practice. The astrological medical doctrine is discussed in the lessons from two different approaches. The first entails all medical information derived from the judgement of the nativity. The second uses astrological methods to evaluate an illness and its development by calculating of a specific astrological figure for the beginning of the disease; this does not require use of the nativity. The authors do not always separate clearly these two facets of medical astrology. Fallon, for example, addresses both in the chapter on the judgement of sickness in the nativity. This is an extremely abridged version of these doctrines, only providing the student with a general notion of the main concepts and procedures of medical astrology. As usual, the earlier version of his text has some more information. Dias, on the other hand, offers only part of the medical rules for nativities taken directly from Delgado's text.

Delgado offers the most complete description of the doctrine of medical astrology. He deals with the medical judgements of the nativity in the third treatise, just before the techniques of prediction, and dedicates the fourth treatise entirely to medical astrology. Regarding nativities Delgado begins by explaining the importance of the hyleg, the significator of life, as also a chief significator in judgements of health. He discusses its method of calculation and his choice goes unsurprisingly towards Ptolemy's method; yet he includes some additional considerations from Haly, quoting the authority of Ciruelo, as well as the common methodology of considering the other hylegical points as potential significators of health in medical judgements. Afterwards he recalls the association of the signs and the houses to the different parts and organs of the body and highlights the sixth house as signifying sickness. He follows this with twelve canons containing the principal rules for the judgement of sickness and health in the nativity. These address the sixth house, its sign, the planets contained in the house or aspecting it, the planetary lord of the sixth house, the maleficent planets, Saturn and Mars, the condition of the Moon, and some other configurations, all of them standard procedures of medical astrology.

In the fourth treatise, Delgado expands the topic further, being the only author to dedicate an entire section to the methods for astrological judgement of diseases. He begins by reminding us that physicians who have the necessary knowledge of astrology are better at their profession, a statement he backs up on the authority of Hippocrates, Galen, Apollonius, Hipparchus, Ficino,

Albumasar, and of course, Ptolemy. He then addresses the complex doctrine of crisis and decumbitures.⁶⁷⁶ This entails the calculation of the figure for the time the patient fell ill, or alternatively the time the physician was consulted. The progress of the disease is judged from this figure and from the movement of the Moon in the consecutive days. Each critical day of process occurs when the Moon makes an angle of 45°, 90°, 135° and 180° to its original position. Delgado emphasises the need for precision in these calculations by taking into account the speed of the Moon and by the proper use of the ephemeris, making note of the critiques of Abraham ben Ezra regarding the ill practice of this method by some doctors which simply count the days instead of using the Moon's true motion. He then provides some rules that should be considered when observing the Moon, based on the *Iatromathematics* by Hermes.⁶⁷⁷ The treatise ends with a warning against all other forms of medicine not based on the natural influence of the celestial orbs:

From everything that we have said in this treatise it should be concluded that all other arts and manners of prognosticating diseases that do not proceed from the complexions and causalities of the planets and signs are mere superstitions and worthy only of abomination as inventions of the devil for the perdition of those who use them and believe them ...⁶⁷⁸

He also condemns the use of talismans, sigils and so on, as well as magical operations as worthless and as arts of the devil. With these statements he shields his work against any illicit practices that might be confused with medical astrology and reaffirms his teachings as natural and Christian.

Techniques of prediction

The methods of forecast for nativities are only addressed by Delgado and Fallon; this topic is missing in the extant copies of Dias's lessons. For the most part the doctrine presented in this section by both Delgado and Fallon is quite standard. They both address the chief methods of prognostication, which are the profections, directions and revolutions.

⁶⁷⁶ For an overview of the main medical astrological practices see: Nancy G Siraisi, *Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice* (Chicago: University of Chicago Press, 1990); Akasoy, Burnett, and Yoeli-Tlalim, *Astro-Medicine*; Glen M. Cooper, 'Approaches to the Critical Days in Late Medieval and Renaissance Thinkers', *Early Science and Medicine* 18, no. 6 (2013): 536–65; Hirai, 'The New Astral Medicine'.

⁶⁷⁷ Published in Johannes Stadius, *Ephemerides Novae et Exactae Ioannis Stadii Leonnovthesii: Ab Anno 1554 Ad Annum 1570* (Cologne: Birckmann, 1556); for a modern edition, see Emanuele Rovati, 'Die «Iatromathematika» des Hermes Trismegistos: Einleitung, Text, Übersetzung', *Technai* 9 (2018): 9–132.

⁶⁷⁸ Do que dissemos neste tratado se colige que todas as outras artes e modos de pronosticar as doenças que não procedem pelas compleições e causalidades dos planetas e signos são mera superstições e dignas de se abominarem com invenções do demônio por perdição de quem as usa e lhe dá crédito ... (Delgado, tr.4)

Profections are a method of moving the various components of the nativity in time by advancing them at the pace of a complete sign (that is thirty zodiacal degrees) per year. The judgement of these movements is made by studying the relationship between the position of the points arrived at by profection and the original positions of the nativity. Although any point of the nativity can be moved by profection, the astrologers pay special attention to the hylegical points (the Sun, the Moon, the Ascendant, the Lot of Fortune, and the Midheaven, which in this context replaces the prenatal lunation). Of these five points, the Ascendant is the most relevant. Its movement defines the main events and states of the native and establishes the planet known as the ruler of the year which signifies the overall conditions of the year; this is the planet with rules the sign where the Ascendant is placed by the movement of the profections. Although the method of annual profections (one signs per year) is more commonly used, the same methodology can be applied to monthly motions by considering a movement of thirty degrees each month; these are called the monthly profections. Some authors use also the term progression as a substitute to profections.

Directions are similar to profections, but more complex in definition and in calculation. In this method the various points of the nativity, called the ‘significators’, are moved considering their position on the celestial equator and their ascensional arcs (for example, using the right or oblique ascension of the significator). The events in the person’s life are established when these points reach a natal position or the aspect to a natal position, named ‘promisors’; other points such as house cusps and the lunar nodes can also be considered. Each degree of ascension travelled corresponds to a year in the native’s life. As with the profections, any point of the figure can be moved through this method, but the astrologers usually give precedence to the five hylegical points. The directions of the Ascendant and the Midheaven are used for a precise rectification of the nativity figure, as mentioned before.

Revolutions, also known as revolution of the years of the native, entail the calculation of a figure for the date and time that the Sun returns to same zodiacal degree, minute and second where it was placed in the nativity. This usually occurs within hours of the original birth time, falling either on the same day of the anniversary, the day before or the day after, depending on the calendar adjustments. From the figure of the revolution are judged the general conditions of that year.

The overall judgement of the life events and conditions is made by combining the information obtained in each method, using rules of priority and interaction.

Fallon dedicates his last treatise of the 1639 lessons to this subject, addressing the directions in three chapters and the profections in two; he does not offer an explanation of the revolutions, although he mentions them in the title. He defines each method and gives a summary explanation of their calculation but offers no guidelines for their judgements.

Delgado, on the other hand, gives an explanation of all three methods. He offers a definition for each and provides rules for the interpretation of the main configurations and movements. As Fallon and almost all of their contemporaries, Delgado choses the method of Regiomontanus for the calculation of the directions, also suggesting the use of the celestial globe as an easy and precise method as proposed by Gemma Frisius and Jean Taisnier.⁶⁷⁹ Additionally, he also addresses the Firdaria, presenting two alternative methods to the one he mentioned when discussing of the conception figure, but he seems to prefer this latter:⁶⁸⁰

And this manner is the one proper to those Indians and Persians of which Ciruelo speaks. So that, when the judgement that can be made through these governing planets by their order, agrees with the judgement of birth, [as well as the judgements] of the progression of the Ascendant and the hyleg, of the direction, and transit, all will be more certain and rectified. And when they disagree, [it will be] according to the discordance. [And, thus] considering well all parts of the universal judgement, a ruling will be given on the health and bodily disposition of the native in that year.⁶⁸¹

⁶⁷⁹ There are three types of calculation for the directions: 1) the directions of the Ascendant which are computed using the oblique ascension of the ascendant degree and the of the degree of the second point (the promisor); 2) the directions of the Midheaven which are calculated using the right ascension of the Midheaven and the promisor; 3) the interplanetary direction, or those involving any points which are not located in the Ascendant or Midheaven. These are either calculated by the traditional and older method called the semi-arc method or by using the Regiomontanus method which in a similar fashion to his computation of the houses (the Rational method) uses circles of position to calculate the directions. In the same way as the houses, the method of directing proposed by Regiomontanus was preferred in the early modern period, but due to the complex calculation authors such as Cardano preferred the semi-arc, a fact that Delgado briefly makes note of when referring the globe.

⁶⁸⁰ Here Delgado presents three different methods under the name 'firdaria'. The first is cited from Ciruelo as being Persian and Indian in origin and attributes to each year the rulership of a planet starting with the Sun in day charts and the Moon in night charts and following the descending order of the celestial spheres. The second is the traditional firdaria scheme already presented above; this time Delgado includes the nodes of the moon in the computation and explains that each period of rulership of one planet is divided into seven sub-periods each given the governing of one planet, beginning with the planet which rules the period and proceeding in the order of the spheres; he gives as an example the sub-periods of the firdaria of Mars as its duration is 7 years and so its division is straightforward. The third method, that he takes from Origanus, quoting Cardano, attributes the rulership of the planets to periods of 7 years, beginning with the Moon and proceeding in the ascending order of the spheres (Mercury, Venus, Sun, Mars, Jupiter and Saturn), which repeats after 49 years. Delgado notes the similarity between this last system and the one Ptolemy presents usually known as the 'Ages of Man' (*Tetrabiblos* IV.10); in Ptolemy's system the Moon rules the first 4 years of life, then Mercury for 10 years until the age of 14 after which Venus has domains for 8 years until the age of 22, then the Sun for 19 years until the age of 41, Mars rules the next 15 years until 56 years of age, then Jupiter for 12 years until the native has 68, then Saturn has domain in the following 30 years.

⁶⁸¹ E este modo é o próprio daqueles índios e persas que diz Ciruelo de sorte que concordando o juízo que se pode fazer destes planetas governadores por sua ordem com o juízo do nascimento, da progressão do ascendente e hilec, da direcção e trânsito

Here he associates the firdaria with the other methods of prediction, including another one he notes very briefly when providing rules for the judgement of revolutions: the transits. This is a very simple method, used as an auxiliary to the other three, that takes account of the positions of the planets in a chosen time and notes if they make a conjunction or aspect to relevant points in the birth figure.

Concerning the practical application and judgement of all these methods, Delgado offers the student several rules of interpretation. In them he not only considers each method by itself, but also their interaction. He also warns the student that these can be overridden by the greater and more universal configurations discussed in the weather forecast section. At the end of the exposition of the doctrine of revolutions he makes a sum of the main things to be considered in its judgement, but also includes its combined use with the various techniques. These instructions show what Delgado considers to be the main points for prediction in a nativity, revealing a good knowledge of their practical application. They are also a good example of his pedagogy for the prognostication of health and sickness:

... having erected the celestial figure of the hour of the revolution, with all the requisites that we mentioned, it is convenient to note on the side the sign of the profection of the year that corresponds to the degree of the ascendant and to the principal hyleg of the birth figure. And by means of the sign of the annual profection, we will also note the signs of the monthly profectiions, which are, as we said, the thirteenth part of the year – being such that the same sign of the whole year comes to be the sign of the first month as well as of the last, etc. In the same manner, one should make note of the place of the direction of the ascending degree of the figure of birth in that year, as well as that of the degree of the chief hyleg, so that we can see to what degrees of a sign and to what terms of a planet they arrive. Besides this, we will note the planet that is lord of the sign of the profection in that year which will be called lord of the year, [and] similarly the planet that is lord of the degree of the direction of the Ascendant, which they call divisor, and that will be the specific significator of the disposition and natural complexion of the native for that year. And lastly let it be written, as is customary, all the essential and accidental dignities of the planets, with their aspects as in the figure of birth, of which one must have a copy before the eyes to combine with it the significations in this judgement of the revolution. [These will be] not those [significations] of the physiognomy, stature, and similar, which are of no use for this matter, but those which are proper to life or health, and to a good or contrary disposition.⁶⁸²

será tudo mais certo e rectificado e quando discordarem conforme a discordância considerando bem todas as partes do juízo universal se dará a sentença da saúde e disposição corporal do nascido naquele ano ... (Delgado, tr.3, ch.3).

⁶⁸² ... levantada a figura celeste para a hora da revolução com os requisitos que dissemos convém notar-se de parte o signo da progressão daquele ano que responde ao grau ascendente e ao hilec mais principal da figura do nascimento e por meio do signo da progressão anuas notaremos também os signos das progressões mensurais profecionais que são como dissemos a 13.^a parte do ano de modo que o mesmo signo de todo o ano vem a ser do primeiro mês e do último, etc. Da mesma maneira se notará de parte o lugar da direcção do grau horoscopante da figura do nascimento daquele ano com o grau do próprio hilec principal, para vermos a que graus de algum signo e a que termos de algum planeta chegam. Além disto notaremos o planeta senhor do signo da progressão daquele ano o qual se chamará senhor do ano nem de outra maneira o planeta senhor do grau da direcção do ascendente a que chamam divisor, a saber, particular significador da disposição e

By his own words it becomes evident that Delgado's intention is to apply these methods only to medical prediction as a means to identify moments in the native's life that can be more prone to illness or any difficulty. This is clear in all his rules and canons. For example, in the explanation of the profections he highlights the years more prone to illness and general difficulties, while in the directions he lists the main damaging places in the nativity that must be on the astrologer's mind when applying the method.

However, along with his discourse Delgado makes reference to significations and offers examples that report the common use of these methods for other facets of human life other than just matters of health, for example, matrimony, honours and wealth. If this were any other text on astrology this type of discussion would be quite standard, but considering the posture of Jesuit authors, and in particular that of Delgado, in distinguishing natural and superstitious practices of astrology, this becomes a noticeable contradiction that must be understood.

Natural inconsistencies

Despite the diligent attempts of the Jesuit authors to detach their teachings from the superstitious forms of astrology and to assert their astrological doctrine as natural, some critical components of astrology were not an easy fit in this 'true' and 'lawful' revision of astrology. Simon Fallon dedicates a very small but revealing chapter to what he names 'the other accidents of the figure.' Here he oversteps the limits of natural astrology as he lists significators for topics which are considered out of bounds for the Christian astrologer, namely wealth, brothers, parents and children. In the earlier version of the text he goes even further, providing a more extensive list of significators covering all main topics: marriage, religions, peregrinations, honours, friends, enemies and death. However, he cautions anyone that ventures into such judgements:

Finally [it must be said] that there is nothing that does not have its particular significator, which the curious astrologers must carefully check, keeping in mind that small details may escape him, and that many of them depend in some way on human free will. [Therefore] it cannot be stated that they will occur, but rather that inclination leads to it, because the axiom remains, that *sapiens dominabitur astris*.⁶⁸³

compleição natural do nascido por aquele ano. E ultimamente escrevam-se como é costume todas as dignidades essenciais e acidentais dos planetas com seus aspectos ao modo da figura do nascimento a qual se há-de ter exemplar diante dos olhos neste juízo da revolução para cotejarmos com ela os significados não da filisomia, estatura e semelhantes, que não servem ao propósito senão os que são próprios da vida ou saúde e boa ou contrária disposição. Tudo isto preparado reger-nos-emos com Ciruelo por estes cânones que é o mais claro modo e mais fácil. (Delgado, tr.3, ch.3).

⁶⁸³ Finalmente não há cousa que não tenha seu particular significador donde o curiosos astrólogo tudo há de conferir com cuidado advertido que lhe podem escapar muitas miudezas e que também como muitas delas dependem de alguma maneira

Fallon chooses to provide the student with a brief set of instructions to deal with such judgements; these are easily found in most astrology books which provide complete rules for the judgement of such topics. Here Fallon is at the same time explaining the rationale behind the judgement and alerting the student to the problems associated with them.

Delgado, holding a more radical position, does not provide this kind of listing. However, when he explains the difference between the ruler or almutem of a given subject and the co-significator, he uses an example that goes against his promotion of a natural astrology. To explain the calculation of the almutem of substance (or main significator, as he calls it), that is, the overall planetary ruler of wealth in a given figure, Delgado uses the second house, the Lot of Fortune and an additional part, the Lot of Substance:

If in a given diurnal birth the second house is placed at five degrees of Aries, and the Lot of Substance at ten degrees of Leo, [and] the Lot of Fortune at six degrees of Sagittarius, [then] in this case, the Sun, which in the cusp of the second house has its exaltation and the honour of triplicity, and in the place of [the Lot of] Substance, domicile and also the honour of triplicity, and furthermore, in the place of the Lot of Fortune, in the same manner, [it has] its triplicity. [Therefore,] there is no doubt that, having gathered such [sum of] carats [i.e. points] of dignity, it [the Sun] would be, or we would consider it to be, the main significator of substance...⁶⁸⁴

This example has many implications. First, in order to use it as an example he has to assume that the second house does have a signification over wealth, something he has vehemently dismissed before when addressing the houses. Secondly, the same signification of wealth is linked with the Lot of Fortune, an association, that despite being traditional, Delgado has not mentioned at all. And finally, he evokes the Lot of Substance in this judgement. Again, while this part is traditionally included in the judgement of wealth, since Ptolemy does not mention any lots other than the Lot of Fortune in the *Quadripartitum*, they are dismissed by the Ptolemaic astrologers; Delgado being one of them. By using the Lot of Substance, he is grounding a portion of his teaching in techniques that are non-Ptolemaic, and that he condemns. This discrepancy is even more noticeable bearing in mind his own words when discussing the other significations of the planets and the houses. Although in the text he dismisses such

da liberdade humana, não se pode dizer que sucederão senão que a inclinação levava a isso, porque sempre fica verdadeiro o axioma *spiens dominabitur astris*. (Fallon, *Astrologia pratica*, BNP Cod. 2127, f.173v).

⁶⁸⁴ se em algum nascimento diurno estivessem na 2.^a casa 5 graus de ♀, e a parte da sustância em 10 graus de ☿, a parte da fortuna em 6 graus de ☿, neste caso o ☉ que no ângulo da 2.^a casa tem sua exaltação de direito de triplicidade, item no lugar da sustância, sua casa, e também direito de triplicidade, além disto, no lugar da ☿ da mesma maneira sua triplicidade, sem dúvida que com tais quilates de dignidade seria ou demos que fosse o significador principal da sustância (Delgado, tr.3, ch.3).

significators as foolish, and states that he only used them as examples, it does not fully explain why he did not choose a more suitable example:

Let us add a third note, that, regarding the meanings of the planets and celestial houses – excluding those that belong to health and the preservation of life that with the good natural disposition to which the heavens can naturally concur – we have already addressed in some places above that we regarded them as of very little consequence, and as Ciruelo says, as edifices [built] on sand, without the foundation of natural reason, and no divine authority that can confirm them; quite the contrary. Many that consider them, do it all by vanity, such as those vain astrologers – or astrologers only by name and not truly – that address them [i.e. the meaning of the houses] and produce [about them] large volumes.

And thus, we deem as most unhealthy and unworthy of any Christian man (as much as he is enticed by the common eagerness that each one has to know by means of the heavens what will become of him and his life by vain curiosity, [which is] reprimanded even by Pliny in book three) to spend time with the judgements of the substance or of the money that the native will have, of buying and selling, and any other business of life; of how many and how will be the brothers and sisters, if helpful or harmful, if friends or enemies; of the low or noble condition of the children and grandchildren, and what enjoyment or discontentment will arise from them; of slaves, and cattle and animals, if some will be faithful and others profitable, or not; of the condition of life, and if one is married, of the wife and her good or bad condition; of the friends and enemies, either occult or manifest; of the journeys, of peregrinations, long or short, by sea or land, and of the advantage or damage that will happen from them; of his grace or disgrace with kings, prelates, and other people of secular and ecclesiastic authority; if he will obtain honours, solemn offices, positions of dignity, or the reverse; of the dangers he must keep himself from in the conversation with such and such men, and in the use of such and such service animals, of venomous [creatures], of feral beasts, of the wall that he might find himself buried under, of the tile that might fall from the roof, of the stray stone, arrow, or bullet that will injure him, and similar disasters; of the exact time of death (and because of this we do not declare the operation of how to form a judgement from the alcocodens), of the quality of this same death, of its place, if in the homeland or outside it; of the gifts of prophecy, of divination, dreams, of the natural virtue against those possessed, which some Arabs attribute to the stars, and of many other similar things that are much more foolish and abject, of which is filled [the book of] Julius Firmicus, and others.

And, although we used above some of these meanings as examples, it was [only] to explain the directions and profections, or to provide a decent amount of knowledge of the art to the listeners, so that as wise and good Christians they may judge between the good and the bad, [and] of the truth and the falsehood of astrology, which is in itself an art and science most profitable, delightful and ingenious, [as long as] it does not surpass the limits to which, as a natural and humane science, it can extend, and no further.⁶⁸⁵

⁶⁸⁵ Ajuntemos a 3.^a notação que quanto aos significados dos planetas e casas celestes fora dos que pertencem à saúde e conservação da vida com boa disposição natural para o qual os céus podem naturalmente concorrer já tocámos em alguns lugares acima que os tínhamos por de muito pouco momento e como diz Ciruelo como edificios sobre areia sem fundamento da razão natural nem autoridade divina que os confirme, antes pelo contrário muitos que os julgam todos por vaidades assim como são vão os astrólogos ou astrólogos somente de nome e não de verdade os que dele tratam e fazem grandes volumes. E assim julgamos por emfermissimos e indignos de homem cristão se ocupar neles (por mais que o leve o apetite comum de querer cada um saber por meio dos céus o que há de ser de si e da sua vida com curiosidade vão e repreendida até de Plínio no livro 3.^o) os juízos da substância ou do dinheiro que há de ter o nascido. Da dita em comprar e vender, e outros negócios da vida; de quantos e quais hão de ser os irmãos e irmãs, se proveitosos ou prejudiciais, benévolos ou inimigos; da condição baixa ou nobre dos filhos, dos netos, quais serão e que gostos, ou descontentamentos lhe hão de nascer deles; dos escravos, do gado, do bestiam, se aqueles lhe serão fieis e estes outros proveitosos ou não; do estado da vida, e se for casado da mulher, e da sua boa e má condição; dos amigos e inimigos, assim ocultos como manifestos; dos

This also highlights an important shift occurring to astrology in this period: a fragmentation within the practice of astrology arising from the clash between the older classical-medieval traditions with the new religious-natural rationale. This is further fuelled by the plethora of opinions circulating in printed form. Even two unquestionably religious scholars, like Delgado and Fallon, struggle to adjust the doctrine of astrology and its millennia-established practice to fulfil the precepts imposed by the church. Strong as may be their arguments for a true and natural astrology, there are many consolidated practices and doctrines in astrology that cannot be easily dismissed or justified naturally. Likewise, they also struggle to maintain components of the doctrine they consider useful and functional, but which are dependent on others that are assumed to be superstitious. A good example is once again the signification of the houses. In the text above, Delgado purposely excludes health and sickness from the list of unworthy significations. This was a topic signified mainly by the sixth house of the figure, and a traditional element that he required for the judgements of medical matters; the very subject that not only was considered licit, but also the only means to validate the study of nativities. Therefore, at the end of his long discourse as to the foolishness of the significations of the houses he adds:

However, those significations also of the houses as to illnesses – that we [have already] addressed and will say some more of in the following treatise – greatly put a halt to my understanding, since it seems that Giovanni Pontano offers a good explanation [of their meaning] as [being] true and natural.⁶⁸⁶

This means that, in face of Pontano's argument of the natural significations of the houses regarding health and sickness, Delgado places on hold his denial of the traditional meanings of the houses in what concerns their signification over such matters.⁶⁸⁷ Although his purpose here is to consolidate astrology's usefulness to medicine, something he has recognised from the

caminhos, das peregrinações breves ou compridas, por mar ou terra, e do proveito ou dano que delas lhe há-de suceder; da sua graça ou desgraça com reis, prelados e outras pessoas de autoridade seculares e eclesiásticas, se há-de alcançar honras, officios graves, cargos de dignidades, ou se tudo isto pelo contrário; dos perigos que se há-de guardar em conversação de tais homens ou no uso de serviço de tais animais, de pessonnas, de bestas feras, de parede quando o há de tomar de baixo, da telha que lhe há-de cair do telhado, da pedrada, ou virote, ou pilouro errado que o há de ferir, e semelhantes desastres; do tempo certo da morte (e por esta causa não declaramos de industria como se há-de formar o juízo dos alcocodens) da qualidade da mesma morte, do lugar, se na pátria, ou fora dela; dos dons de profecia, dos adivinhos, sonhos, da virtude natural contra endemoinhados que alguns árabes atribuem às estrelas, e de muitas outras coisas semelhantes e muito mais estultas e torpes de que está cheio Júlio Fírmico e outros. E ainda que pouco atrás usamos dalguns significados destes para exemplo, foi isso para explicarmos as direcções e progressões ou para darmos bastante conhecimento de toda a arte aos ouvintes para que como sábios e bons cristãos saibam julgar entre o mau e o bom, entre o verdadeiro e o falso da astrologia que de si é arte e ciência muito proveitosa, gostosa e engenhosa, não passando os términos daquelas cousas a que ela como ciência natural e humana se pode estender e não mais (Delgado, tr.3, ch.3).

⁶⁸⁶ Antes aqueles significados também das casas quanto às enfermidades de que tratámos e diremos mais alguma coisa no seguinte tratado, em muita parte me suspendem o entendimento, posto que Juveal Pontano parece que as leva bem ao verdadeiro e natural (Delgado, tr.3, ch.3).

⁶⁸⁷ Pontano, *De rebus coelestibus*, bk. 2 chapter 4.

beginning of the treatise, this exception creates a noticeable dent in his rationale. Another example is a reference Delgado makes to the completion of the years of the alcocodem when discussing dangerous directions. Here he puts forward the commonly accepted idea that, if a dangerous direction would occur when the years of life proposed by the alcocodem were at an end, this could represent death. Before, he harshly dismissed this doctrine as forbidden, but here he is considering it to assist prediction. It becomes evident that Delgado considered this method valid but abstained from teaching it due to its suspicious status.

Yet another example of such discrepancies is the use of terms and faces in Delgado's discourse. Despite the quick dismissal of these two essential dignities in the first treatise, they keep reappearing when he addresses methods that require them, such as the almutem of the figure, the hyleg, and directions.

This ambiguous sifting of the astrological doctrine to fit church and natural reason, has as its end result a doctrinal corpus, riddled with small inconsistencies. All authors, but perhaps more evidently Delgado, are aware of this problem. As much as he is a reformer, Delgado is also a scholar who recognises astrology as a valid knowledge and wants to promote its practice in a manner that consolidates its validity. In order to do this, he needs to get rid of all practices unsound according to religion and at the same time provide natural explanations for all the useful astrological doctrine. This proves a difficult task, as some elements which cannot be naturally explained are essential for the very functioning of astrology. Realizing his reliance in many supposedly superstitious concepts, at the very end of his discourse Delgado cautions those who read his words not to be tempted by them:

And I greatly plea to those who want to take benefit from our small work, that they do not excuse their curiosities or temerities in the superstitious and pestilential astromancy which is often named as astrology, and if it [i.e. astrology] was not [considered] licit it would not be read by the fathers of Santo Antão, as happened in Lisbon⁶⁸⁸

He finishes by firmly reasserting the validity of his teachings as being licit astrology, providing valuable information as to the status of astrology in the earlier years of Santo Antão (as discussed above).⁶⁸⁹

⁶⁸⁸ e rogo muito aos que se quiserem aproveitar deste nosso pequeno trabalho que não escuzem suas curiosidades ou temeridades na astromancia supersticiosa e pestilencial de que se usa com lhe chamarem astrologia e que se ela não fora licita não a leram os padres de S. Antão como já aconteceu em Lisboa (Delgado, tr.3 Ch.3).

⁶⁸⁹ As to Francisco da Costa, as seen above, are told by Manoel de Figueiredo that 'in his writings he reproves of some of the ancient astrologers' which might imply a posture similar to that of João Delgado.

Other topics

Before concluding this study of the Jesuit astrological doctrine, a few remarks must be said on other less visible topics. Besides general doctrine, weather forecasting and nativities, other facets of astrology seem to linger, albeit timidly, lost among the various chapters of the lessons. One of these is elections, the choice of the most favourable moment to execute a given task or action. Most authors seem to accept this form of astrology, at least in its natural version. Delgado mentions medical elections in the introduction to the lessons when describing the fourth treatise ‘of the licit elections and required judgements for perfect medicine’. However, he does not provide any doctrine on medical elections and states at the start of the fourth treatise that he leaves out ‘the medical elections of which are filled the almanacs and ephemeris, even for small things such as cutting hair and trimming nails.’⁶⁹⁰ The fourth treatise on natural elections proposed by Dias would have included ‘elections, for medicine as well as navigation, and especially for all kinds of agriculture’, but unfortunately did not survive. Dias’ text could clarify the exact posture of the teachers of Santo Antão in this matter, but it is quite likely that his position would be similar to Sempill’s, who also addresses only elections for agriculture, navigation and medical operations. All others are seen as foolish and superstitious.

Interrogations are never included or discussed. Yet, there is a brief remark by Dias of true (as in licit) interrogations, which are mentioned when discussing certain attributes of the signs, such as colours, smells and metals, which only make sense in the context of this practice (the equivalent text by Delgado only mentions interrogations):

And in what concerns the colours and smells, some like Ciruelo, reduce them to natural causes and to causes of the nature of their [corresponding] planets, such as metals, herbs, plants, animals, substances, gums, etc., that have such colours, smells and flavours; [this] they considered, should be applied to the interrogations which are true.⁶⁹¹

This statement suggests that even this highly suspicious form of astrology would have somehow its natural counterpart, at least in the eyes of some of the authors. This is further corroborated by the daring additions to the copy of Fallon’s treatise in BNP Cod. 4331, discussed before. Although not of Jesuit origin, they include a chapter on ‘General rules to answer licit questions without harm to a third party’ whose purpose is to address interrogations that are not harmful

⁶⁹⁰ ...deixando as eleições medicinais de que estão cheios os reportórios e efemérides até para coisas muito pequenas como para tosquiar e cortar as unhas (Delgado, tr.4).

⁶⁹¹ E o que pertence às cores e cheiros, constumão alguns como Ciruelo o bem reduzido a causas naturais e em causas da natureza dos seus planetas, como metais, hervas, plantas, animais, bitumes, gomas, etc., que tem as tais cores, e cheiros, e sabores, o que entendem dever-se aplicar às interrogações que sam verdadeiras (Dias, tr.3, ch.10).

to others. However, in the eye of the Church and the Jesuits, most of the interrogations discussed here would still constitute a violation of free will and thus inadmissible. It remains unclear as to what Dias meant as true interrogations, as none of the Jesuit authors provides an example or a discussion of this topic. It is possible that these and other subjects, due to their sensitive nature, would be discussed in private conversations or outside the classes, as is suggested by the reference to ‘viva voce’ teachings by Dias.⁶⁹²

Sources and scholarship

All three authors display a vast knowledge of sources, showing a very good comprehension of the existing astrological tradition. They are well aware of the main debates surrounding astrology, its definition and practice, since they all position themselves against Pico della Mirandola. They make reference to the main authors who supported astrology against Pico, such as Lucio Belanti, Albert Pigghe, Gabriele Pirovano and Michele de Petrasanta. A significant number of philosophers, theologians and Christian authorities are also mentioned in the discussions of the lawfulness of astrology. To these are added numerous authors of astronomical texts, who provide the mathematical background for the study of astrology. Among these are names such as Christopher Clavius, Francesco Maurolico, Georg von Peurbach, Giuseppe Scala, Nicolaus Copernicus, Oronce Finé, Peter Apian, and Tycho Brahe. These, together with the astrological authors, come to more than eighty authorities mentioned by Delgado, Dias and Fallon. However, in order to understand the astrological lineage and sources of the lessons at Santo Antão, this discussion will only focus on the authors of astrological doctrine.

In terms of astrology, Delgado, Dias and Fallon are not only knowledgeable of the traditional works of the early authors, but also quite familiar with the main writers who shaped astrological practice in the sixteenth and seventeenth centuries. In total, between these three Jesuit teachers, more than fifty authorities in astrology alone are mentioned (see Table 11.22). Delgado mentions more than forty different authors and Fallon cites around thirty in his first text and a little more than twenty in the second text. Dias quotes significantly less than the others, only eleven. However, this number includes only the first and third treatises of his work;

⁶⁹² There are some instances defending interrogations as a legitimate astrological practice, although they had little acceptance in Christian context. This entails considering a natural connection of the moment when the question is asked and the nativity. For an example of such a discussion see C. Philipp E. Nothaft, ‘A Fourteenth-Century Scholastic Dispute on Astrological Interrogations’, *Vivarium*, no. 2 (2021) (in print).

more would certainly have been mentioned in the missing second and fourth treatises. For example, in the texts of Delgado and Fallon the references to Albumasar are mostly present in the second treatise, on weather forecasting, which is missing in Dias.

Table II.22 – List of authors of astrology or related works cited in the lessons of Santo Antão*

Delgado	Dias	Fallon (text 1)	Fallon (text 2)
Abraham Avenezra	Cyprián Lvovický	Abraham Avenezra	Albert Pigghe
Agostino Ricci	David Origanus	Albategni	Albert the Great
Albert Pigghe	Galen	Albert Pigghe	Albumasar
Albumasar	Gerolamo Cardano	Albumasar	David Origanus
Alcabitius	Giovanni Antonio Magini	Alcabitius	Francesco Giuntini
Alfraganus	Giovanni Pontano	Alfraganus	Gerolamo Cardano
Aomar Tiberiades	Haly Abenrudian	André de Avelar	Giovanni Antonio Magini
Avicenna	Hermes	Cyprián Lvovický	Giovanni Pontano
Bernardo Pérez de Vargas	Julius Firmicus Maternus	David Origanus	Haly Abenragel
Cyprián Lvovický	Lucio Bellanti	Francesco Giuntini	Haly Abenrudian
David Origanus	Pedro Ciruelo	Galen	Hermes
Francesco Giuntini	Ptolemy	Gerolamo Cardano	Jean de Gerson
Gabriele Pirovano		Giovanni Antonio Magini	Johannes Stadius
Galen		Haly Abenragel	Johannes Stöffler
Gaspard de Laet		Hermes	John Duns Scotus
Gemma Frisius		Jean de Gerson	Julius Firmicus Maternus
Georg von Peuerbach		Johannes Schöner	Luca Gaurico
Gerolamo Cardano		Johannes Stadius	Lucio Bellanti
Giovanni Antonio Magini		Johannes Stöffler	Michael de Petrasancta
Giovanni Pontano		John of Saxony	Miguel Servet
Haly Abenragel		Julius Firmicus Maternus	Pedro Ciruelo
Haly Abenrudian		Leopold of Austria	Ptolemy
Hermes		Lucio Bellanti	Regiomontanus
Jacques Peletier		Manuel de Figueiredo	Valentin Nabot
Jean de Gerson		Messahallah	
Jean Guido		Oronce Finé	
Jean Taisnier		Pedro Ciruelo	
Jerónimo Cortez		Ptolemy	
Johannes Stadius		Regiomontanus	
John Duns Scotus		Valentin Nabot	
John of Saxony			
John of Seville			
Jorge de Trebisonda			
Julius Firmicus Maternus			
Leopold of Austria			
Lucio Bellanti			
Marsilio Ficino			
Messahallah			
Pedro Ciruelo			
Peter Apian			
Ptolemy			
Regiomontanus			
Simeone Majoli			
Valentin Nabot			
Zael			

* The most quoted authors are in bold

Some authors are more frequently cited than others. Predictably, Ptolemy is the fundamental author on which all base their work, and both the *Quadripartitum* and the *Centiloquium* are ubiquitous presences. Yet, their chief source for Ptolemy is the commentary attributed to Haly Abenrudian, therefore Abenrudian becomes almost as present as Ptolemy himself, though mostly in a veiled form. Apart from Ptolemy, the most frequently mentioned authors are Pedro

Ciruelo, David Origanus, Valentin Nabot, Giovanni Magini, followed by Girolamo Cardano, Giovanni Pontano and Lucio Bellanti – all relatively recent authors. Among the earlier sources, the most recurrently mentioned are Alcabitius (in particular the commented version by John of Saxony) and Albumasar (mostly because of the theory of conjunctions); in second place come Hermes and Firmicus Maternus. As noted before, the dominant presence of modern authors, reveals how the astrology being taught at Santo Antão by the Jesuits was already a revised and modernised version of earlier medieval traditions.⁶⁹³

Pedro Ciruelo is one of the main cornerstones for the astrological curriculum of Santo Antão. He is the author cited most frequently by both Delgado and Dias, and still has a considerable presence in Fallon's texts, although to a lesser extent. This choice tells us much on the standing of the Jesuits on astrology, since Ciruelo's text offers an excellent base for the ideal of a natural and religiously-sound astrology. The book title is very clear as to Ciruelo's position on astrology: *Outcomes of Christian astrology: recently edited by Pedro Ciruelo of Daroca on only two parts of the judgements, that is, the changes of the seasons and of human births, rejecting altogether the questions and the vain elections of the false astrologers*.⁶⁹⁴ It contains two prologues, the first discussing the validity of astrology and the second offering replies to some of Pico della Mirandola's arguments. Book one addresses the general principles of astrology, book two is on the judgement of the weather, book three on nativities, and book four on licit and natural elections.

The *Apotelesmata* was written as a defence of astrology following the many discussions that surrounded the famous prediction of a deluge for 1525; in it Ciruelo presents an approach to astrology based on natural reason and devoid of superstitious and nonsensical components, thus making it suitable for a Christian practitioner. He combined two important talents. Firstly, he was a highly reputed authority for his knowledge of theology and natural philosophy.⁶⁹⁵ His famous work condemning superstition, *Reprobación de las supersticiones y hechicerías* received numerous editions and was widely circulated.⁶⁹⁶ Secondly, he was also an accomplished mathematician and, above all, a defender, a teacher, and a practitioner of

⁶⁹³ For a comprehensive study on the printed astrological manuals of the early modern period, see Lerch, *Scientia astrologiae*.

⁶⁹⁴ *Apotelesmata astrologiae christianæ*. Nuper edita a magistro Pedro Ciruelo Darocensi super duabus tantum judiciorum partibus: hoc est de mutationibus temporum & de genituris hominum. Rejctis omnino interrogationibus & vanis electionibus falsorum astrologorum.

⁶⁹⁵ On Ciruelo's impact on astrological discussion see Thorndike, *History of Magic and Experimental Science. The Sixteenth Century*, 5:275–79; and also, Tayra Lanuza Navarro, 'Astrology in Court: The Spanish Inquisition, Authority, and Expertise', *History of Science* 55, no. 2 (2017): 187–209.

⁶⁹⁶ Pedro Ciruelo, *Reprobacion de Las Supersticiones y Hechizerias* (Sevilla: Andres d'Burgos, 1547), first printed in 1530.

astrology. Thus, he had the ideal background to produce an informed revision of the astrological doctrine in order to fit it in the parameters demanded by the rules of the Church. More than eighty years later, Delgado will follow on Ciruelo's footsteps, evoking in many instances his expertise and arguments to back his presentation of a true and proper astrology.

The other noticeable sources come from texts that were published as supplements to ephemerides. These concise treatises presented the principles of astrology, from the fundamental concepts to the methods for the judgement of weather and nativities, providing a model that would be adapted later by the lessons of Santo Antônio. One of the works more frequently cited is the already mentioned *Isagoge in Iudiciariam Astrologiam* by Giovanni Magini, an introduction to the principles of astrology published as part of his ephemeris.⁶⁹⁷ The *Isagoge* contains an explanation of the foundational concepts making it a common reference work for the general principles. As seen before in Paul Guldin's discourse (see Part Two), Magini follows the ideal of a natural astrology expunged of the superstitions of the ancients, offering an explanation of a doctrine quite suitable for the Jesuit lessons.

Another highly cited text is *De effectibus astrorum* by David Origanus.⁶⁹⁸ Similar to Magini's work, it was published as an ephemeris supplement, but it is more extensive. Besides the introductory concepts, it offers a considerable section of doctrine on weather forecasting and on nativities. Its structure provides a good template for the *Aula da Esfera's* curriculum. *De effectibus* includes several elements that the Jesuits considered dubious, but that did not stop its use by the authors. Delgado praises the work but also warns the students that Origanus includes much forbidden material.⁶⁹⁹

The third major source is Valentin Nabet's *Enarratio elementorum astrologiae*, a commented version of the *Introduction to astrology* by Alcabitius, extended with Ptolemaic doctrine on judgements.⁷⁰⁰ Nabet also positions himself as a promoter of a scientific astrology, rejecting the 'sortileges and absurdities' of the traditional doctrine.⁷⁰¹ Still, the text by

⁶⁹⁷ The *Isagoge in Iudiciariam Astrologiam* was first published in Magini, *Ephemerides Coelestium Motuum*, 33–48 but had several editions.

⁶⁹⁸ Origanus, *Ephemerides Novae Annorum XXXVI*, 235–424. There are very few studies on David Origanus, and none on his astrological text; on his astronomical contributions see Pietro Daniel Omodeo, 'David Origanus's Planetary System (1599 and 1609)', *Journal for the History of Astronomy* 42, no. 4 (2011): 439–54.

⁶⁹⁹ Delgado, tr.3, ch.2. Origanus's work featured in the Index of Forbidden Books since 1603, a fact Delgado was surely aware of, but that did not deter him from quoting it frequently. It must be noted that the reasons for this prohibition had to do with the support of Copernican ideas rather than any of his astrological material.

⁷⁰⁰ Nabet, *Enarratio elementorum astrologiae*.

⁷⁰¹ On Nabet's astrological work, see Lynn Thorndike, *History of Magic and Experimental Science. The Sixteenth Century.*, vol. 6 (New York: Columbia University Press, 1941), 119–23.

Alcabitius is frequently cited from a more traditional source: the commentary by John of Saxony.

Gerolamo Cardano is also frequently cited, sometimes through second-hand references from some of the abovementioned authors. His many texts had a significant impact in the shaping of astrology in the sixteenth century, and even though some of his works were controversial or even forbidden, he stood as an unavoidable source. Delgado recognises the value of some of his opinions but condemns his dabbling with superstitious astrology, while Fallon quotes him more freely. Although several of Cardano's works appear to be referenced, only two are cited by title: the *Supplement to the almanac*, one of his earlier works which focuses in the technical aspects of astrological doctrine, and the *Astronomical aphorisms*.⁷⁰²

Along with Cardano, earlier authors, such as Lucio Bellanti and Giovanni Pontano, also appear as recurrent sources. Both Bellanti's *Liber de astrologica veritate* and Pontano's *De rebus coelestibus* were highly praised works, being quoted not only for their validation of astrology against Pico's *Disputationes*, but also for their comprehensive reflexion on astrology's principles and applications.⁷⁰³ Bellanti was a promoter of a natural astrology, presenting throughout his text solid natural arguments for the various components of astrology; in this regard he endorsed the expunging of Arabic superstitions from astrological practice. Pontano, on the other hand, was an individual of great eloquence and intellectual background and his arguments regarding the function of astrology as well as its role in human life are well composed both philosophically and religiously providing a good source for any technical or philosophical debate on the doctrine of astrology.⁷⁰⁴ In this context, Delgado also quotes on several instances Albert Pigghe's *Astrologiae defensio*, a work which is in line with the defences by Ciruelo and Bellanti.⁷⁰⁵ More noticeable authors on astrology appear to have served as sources for the lessons of Santo Antão, but they are too numerous for a detailed discussion.

⁷⁰² Cardano, *Libelli duo*; Gerolamo Cardano, *Libelli quique: I. De supplemento almanach; II. De restitutione temporum & motuum coelestium; III. De Iudiciis geniturarum; IIII. De revolutionibus; V. De exemplis centum geniturarum; Aphorismorum astronomicorum segmenta VII* (Nuremberg: Iohan. Petreium, 1547).

⁷⁰³ Bellanti, *Liber de astrologica veritate contra Johannem Picum Mirandulam*; also published as *Defensio Astrologiae Contra Joannem Picum Mirandolum* (Venezia: Bernardinum Venetum de Vitalibus, 1502); Pontano, *De rebus coelestibus*.

⁷⁰⁴ For a summary of Bellanti's and Pontano's works see Don Cameron Allen, *The Star-Crossed Renaissance: The Quarrel about Astrology and Its Influence in England* (Durham: Duke University Press, 1941), 35–46; and also Akopyan, 'Controversies on Astrology in Renaissance Italy (Late Fifteenth - Early Sixteenth Centuries)'.

⁷⁰⁵ Albert Pigghe, *Adversus prognosticatorum vulgus, qui annuas predicationes edunt et se astrologos mentiuntur astrologiae defensio* (Paris: Henri I Estienne, 1518).

The following table provides a list of the authors and their cited works, revealing the Jesuit's knowledge of the existing bibliography on the theory and practice astrology.

This list also provides a model for the ideal library of a student of astrology, containing the traditional sources, the modern texts, the commentaries, the aphorisms, and the ephemerides and tables indispensable for the calculation of celestial configurations. The presence of a significant number of these books in any Jesuit library is in itself a clue that astrological studies or even practices were taking place in the colleges, even if not as a part of the official curriculum. Unfortunately, the records for the library of Santo Antão from these periods are mostly lost and the surviving listings are from the eighteenth century and at this point it is challenging to assess if these books were available to the teachers and students of the college. There is still ongoing research on Portuguese Jesuit libraries and perhaps in the future a study of their astrology books might be possible.⁷⁰⁶

Table II.23 – Main works of astrological doctrine mentioned in the lessons of Santo Antão

Author	Work(s)	Delgado	Dias	Fallon
Abraham Ibn Ezra	<i>Liber coniunctionum planetarum et revolutionum annorum mundi</i> (1507)	•		•
	<i>Liber luminarium et est de cognitione diei cretici seu de cognitione causae crisis</i> (1507)	•		
Agostino Ricci	<i>De motu octavae sphaerae</i> (1521)	•		
Albert Pigghe	<i>Astrologiae defensio</i> (1518)	•		•
Albert the Great	<i>Speculum Astronomiae</i> (1615)			•
Albumasar	<i>De magnis coniunctionibus</i> (1489)	•		•
Alcabitus	<i>Libellus isagogicus</i> (var.) – comment by John of Saxony	•		•
Alessandro De Angelis	<i>In astrologos coniectores libri quinque</i> (1615)			
André de Avelar	<i>Chronographia ou reportorio dos tempos</i> (1594)			•
Aomar Tiberiadis	<i>Liber de nativitatibus et interrogationibus</i> (1503)	•		
Benito Pereira	<i>Adversus Fallaces & Superstitiosas Artes</i> (1590)	•		•
	<i>Tertius tomus Commentariorum in Genesim</i> (1595)	•		
Bernardo Pérez de Vargas	<i>Fábrica del Universo</i> (1563)	•		
Christopher Clavius	<i>In Sphaeram Ioannis de Sacro Bosco commentarius</i> (1570)		•	•
Cyprián Lvovický	<i>Ratio iudicandi</i> (1558)	•	•	•
David Origanus	<i>De effectibus astrorum</i> (1599)	•	•	•
Francesco Giuntini	<i>Speculum astrologiae</i> (1573)	•		•
Gabriele Pirovano	<i>Defensio Astronomiae</i> (1507)	•		
Gemma Frisius	<i>De usu globi</i> (1530)	•		
Georg von Peurbach	<i>Theoricae Novae Planetarum</i> (1454)	•		

⁷⁰⁶ For the latest research on Jesuit libraries in Portugal see: Luana Giurgevich and Henrique Leitão, 'Para um estudo das antigas bibliotecas jesuítas: catálogos, inventários', *Brotéria*, no. 175 (2012): 161–68; Luana Giurgevich, 'Visiting Old Libraries: Scientific Books in the Religious Institutions of Early Modern Portugal', *Early Science and Medicine* 21, no. 2–3 (2016): 252–72; Luana Giurgevich and Henrique Leitão, *Clavis bibliothecarum: catálogos e inventários de livrarias de instituições religiosas em Portugal até 1834* (Lisboa: Secretariado Nacional para os Bens Culturais da Igreja, 2016).

Gerolamo Cardano	<i>De Supplemento Almanach</i> (1543) <i>De Restitutione temporum et motuum coelestium</i> (1543) <i>Aphorismorum astronomicorum segmenta VII</i> (1547)	•	•	•
Giovanni Antonio Magini	<i>Ephemerides Coelestium Motuum</i> (1582) <i>Tabulae primi mobilis</i> (1604)	•	•	•
Giovanni Pontano	<i>De rebus coelestibus</i> (1512)	•	•	•
Giuseppe Scala	<i>Ephemerides Iosephi Scalae</i> (1589)		•	
Haly Abenrager	<i>De iudiciis astrorum</i> (1546)	•		•
Haly Abenrudian	<i>Quadripartitum</i> (var.) - commentary	•	•	•
Hermes	<i>Iatromathematica</i> (1556) – in Stadius' <i>ephemerides</i> <i>Centiloquium</i> (1492)	•	•	•
Jean Guido	<i>De temporis, Astrorum, annique partium integra atque absoluta animadversione, Libri duo</i> (1543)	•		
Jean Taisnier	<i>De usu annuli sphaerici libri tres</i> (1550) <i>Opus mathematicum</i> (1562)	•		
Jerónimo Cortez	<i>Lunario nuevo, perpetuo y general, y pronóstico de los tiempos universal</i> (1596)	•		
Johannes Schöner	<i>Opera mathematica</i> (1551) – various possibilities			•
Johannes Stadius	<i>Ephemerides novae et exactae</i> (1556)	•		•
Johannes Stöffler	<i>Almanach nova plurimis annis venturis inserentia</i> (1499)			•
John of Saxony	<i>Libellus isagogicus</i> (var.)	•		•
John of Seville	<i>Epitome totius astrologiae</i> (1548)	•		
Jorge de Trevisa	<i>Cur Astrologorum Judicia plerumque falluntur</i> (1525)	•		
Julius Firmicus Maternus	<i>Matheseos libri octo</i> (1497)	•	•	•
Leopold of Austria	<i>De astrorum scientia</i> (1489)	•		•
Luca Gaurico	<i>Tractatus astrologicus</i> (1552)			•
Lucio Bellanti	<i>Liber de astrologica veritate</i> (1498)	•	•	•
Manuel de Figueiredo	<i>Chronographia, Reportório dos Tempos</i> (1603)			•
Marsilio Ficino	<i>De vita libri tres</i> (1489)	•		
Martin Del Rio	<i>Disquisitionum magicarum libri sex</i> (1599)			•
Messahallah	<i>De rebus eclipsium et de coniunctionibus planetarum</i> (1549)	•		•
Michael de Petrasancta	<i>Libellus in defensionem Astrologorum iudicantium</i> (1521)			•
Miguel Servet	<i>Apologetica disceptatio pro astrologia</i> (1538)			•
Pedro Ciruelo	<i>Apotelesmata astrologiae christianae</i> (1521)	•	•	•
Peter Apian	<i>Astronomicum Caesareum</i> (1540)	•		
Pico della Mirandola	<i>Disputationes adversus astrologiam divinatricem</i> (1495)	•		•
Ptolemy and pseudo-Ptolemy	<i>Quadripartitum</i> (var.) <i>Centiloquium</i> (var.)	•	•	•
Regiomontanus	<i>Tabulae directionum profectionumque</i> (1490)	•		•
Simeone Majoli	<i>Dies caniculares</i> (1600)			•
Valentin Nabot	<i>Enarratio elementorum astrologiae</i> (1560)	•		•
Zael (Sahl ibn Bishr)	<i>De principiis iuditorum astrologiae</i> (1508)	•		

This list quotes whenever possible the first edition of the text. The indication 'var.' indicates that there are several different editions.

Gonzaga's baroque astrology

Writing more than sixty years after Fallon, and almost one hundred after Delgado's lessons, Luís Gonzaga's astrological syllabus follows a different structure. As mentioned above, he moves from the foundations of astrology, to nativities, weather, and medicine not defining specific sections to each topic other than the chapters, which more than once address all of these topics.

He begins his treatise by addressing the different methods for the division of the celestial houses, giving as usual preference to the Rational method of Regiomontanus. Then he addresses the calculation and construction of the celestial figure with the use of a table of houses and the ephemeris, being quite thorough in all details of the inscription of the data in the figure. The example figure used might well be his own since it is dated to 1666, the year of his birth. Oddly, he dedicates the next chapter to the conjunctions of the planets, going somewhat off topic and discussing among others, the Jupiter-Saturn conjunctions, their signification and efficacy, which, contrarily to his predecessors, he does not question. Then, in the next chapter he returns to the houses and their attributes before proceeding to explain the aspects. Here, Gonzaga not only addresses the basic concepts, but also adds a list of the effects of all the planetary combinations in nativities as well as on the weather. The next chapters are dedicated to the dignities and debilities. Differently from the previous texts, he begins by addressing the accidental dignities, listing several types of conditions. In this regard Gonzaga is more comprehensive than his predecessors, including concepts such as *haiz*, *cazimi* and *ductoria*,⁷⁰⁷ which, despite being common in the medieval astrological tradition, are not explicitly mentioned by Delgado, Dias and Fallon, most likely because of their Arabic connotation or their non-Ptolemaic origin.

Afterwards, Gonzaga addresses the essential dignities in much the same manner as the other texts. However, he gives preference to the Egyptian table of terms, which he, as well as 'many others', considers to be the most correct. He concludes this topic by exhibiting a table

⁷⁰⁷ A planet is said to be in 'haiz', that is 'in its domain', when both its diurnal or nocturnal, and its masculine or feminine qualities are matched simultaneously by its position in the chart regarding the horizon and by sign. For example, Jupiter being a diurnal and masculine planet, is in 'haiz' when above the horizon in a diurnal chart (or below in a nocturnal chart) and placed in a masculine sign; Mars, being nocturnal and masculine, will be in 'haiz' when below the horizon on a day chart (or above in a night chart) and at the same time positioned in a masculine sign. A planet is said to be in 'cazimi' when it is less than 17' from the conjunction of the Sun; this is considered to be beneficial. 'Ductoria' is a composite condition of the planets which is considered highly beneficial. It presents some variations in its definition, the most common is that a planet is in *ductoria* when, being in *haiz*, it is at the same time oriental to the Sun, or occidental to the Moon while being angular and in square to that same luminary (Gonzaga, *aparencia* 3).

for the evaluations of the overall dignity and debility of the planets. Gonzaga also lists the individual dignities and debilities that should be taken into account when evaluating a planet as fortunate or unfortunate and addresses the calculation and strengths of the Lot of Fortune. Only after all this does he address the zodiac and the signs, usually one of first topics. Besides all the usual foundational concepts, common to all the Santo Antão lessons, he also addresses the matter of the effects of the signs in other regions of the globe, referring to Cardano's theory of inversion of the qualities of the signs in the southern hemisphere; he cautions the astrologer working in Lisbon of these differences:

Cardano in his astronomical aphorisms states that the signs do not influence in the same manner, and [have] the same effects in all parts of the World. There was no need for the authority of this author to serve as proof to a truth that has been reached with the experience of those who travelled the World, as Father Kircher refers to in his *Ars Magnetica*. And it is certain that the signs of Pisces and Aquarius, in which the Sun causes humidity to us, cause heat for our antipodes; nor does this statement require much proof because there is plenty of experience.⁷⁰⁸

Gonzaga then lists the different effects of the signs in the Northern temperate Zone and the Southern temperate Zone, following the same theory of inversion of the elemental qualities of the signs and of the domiciles and exaltations of planets, proposed by Cardano and developed by Campanella (see Part Two). He also adds the qualities of the signs for the Torrid and Frigid zones, but gives no source:

In the torrid zone: Aries, moist and hot; Taurus, cold and moist; Gemini, hot and dry; Cancer, hot and moist; Leo, cold and dry; Virgo, cold and moist; Libra, cold and dry; Scorpio, hot and moist; Sagittarius, cold and dry; Capricorn, cold and moist; Aquarius, hot and dry; Pisces, hot and moist. In the cold zone: Aries, cold and moist; Taurus, cold and moist; Gemini, hot and moist; Cancer, hot and dry; Leo, hot and dry; Virgo, hot and moist; Libra, cold and dry; Scorpio, cold and dry; Sagittarius, cold and dry; Capricorn, cold and moist; Aquarius, cold and moist; Pisces, cold and moist.⁷⁰⁹

As with many earlier authors, this consideration appears to be merely theoretical since these effects are discussed only in regard to weather; nothing is said regarding these supposed effects on nativities. Indeed, after all these considerations he offers a list of the effects of the signs in

⁷⁰⁸ Cardano nos seus Aphorismos Astronomicos diz, que os signos não influem da mesma sorte, e os mesmos effeytos em todas as partes do mundo, nem era necessaria a autoridade deste author para prova de huma verdade que com a experiencia alcançada os que correram mundo, como os refere o Padre Kirker na sua arte magnetica e he certo, que o signo de ♊ e ♋, em que o Sol cauza humidades para nos, causam calores para os nossos antipodas, nem esta necessita de muitas provas, pois sobejam as experiencias (Gonzaga, apparencia 5).

⁷⁰⁹ Na zona torrida ♈ humido, e calido, ♉ frio, e humido, ♊ calido e seco; ♋ calido, e humido, ♌ frio, e seco, ♍ frio e humido; ♎ frio e seco, ♏ calido, e humido, ♐ frio, e seco. ♑ frio, e humido; ♒ calido, e seco, ♓ calido, e humido. Na zona fria ♈ calido, e humido, ♉ frio, e humido, ♊ calido, e humido; ♋ calido, e seco, ♌ calido, e seco; ♍ calido, e humido; ♎ frio, e seco, ♏ frio, e seco, ♐ frio, e seco; ♑ frio, e humido, ♒ frio e humido, ♓ frio, e humido (Gonzaga, apparencia 5).

both nativities and weather, also discussing some medical attributes such as parts of the body and names of diseases. Yet, the global differences are not considered since the attributions he puts forward are quite standard.

In a different spirit to that of his predecessors, Gonzaga includes among other things the effects of each face or decan on human behaviour, and the effects of each sign when in the ascendant and in the tenth, seventh and fourth houses (the angles). Some of the significations presented would be considered quite beyond the limits of ‘proper’ astrology by any of the other authors. His listing continues with the effects of the lunar nodes in each house, followed by a discussion of the significations of seven planets when posited in the twelve houses, and a very comprehensive enumeration of the effects of the planets in human traits and affairs, as well as in more general natural and worldly things. All of these are mixed with several canons and rules regarding nativities, weather and general astrological judgements. Gonzaga then moves to the medical applications of astrology and then to the weather, discussing most of the same rules, canons and precepts already addressed by his predecessors. His scholarship on astrology is quite vast and he quotes several of the same sources mentioned in the other lessons of the *Aula da Esfera*.

Like his fellow Jesuit authors before, Gonzaga intends to transmit to his students the true and proper astrology, as he claims in his introduction. He keeps his discussion within what he believes to be proper to a Christian practitioner, but his boundaries are much more flexible concerning nativities. Since the lessons took place more than one hundred years after the bull of Sixtus V, Christian validation was apparently not one of Gonzaga’s main concerns; yet he never ventures into forbidden areas of astrology, addressing only the accepted practices of weather forecast and medicine. Regarding the presentation of astrological doctrine, Gonzaga’s method is quite distant from the ‘Ptolemaic’ arrangement of the earlier astrological lessons. He is no longer concerned to consolidate a scientific form of astrology based on natural philosophy and on Ptolemy’s tradition, and for example, he is no longer preoccupied with any of the ‘superstitious’ significations of the houses that haunted Delgado. In this sense he acts more freely than his predecessors and makes several concessions they did not, as he includes material that was common in authors less constrained by the strictures of the Church such as those who published before the bull (e.g. Cardano), or those from non-Catholic backgrounds, such as Schöner and Origanus. Consequently, his text, although original, is a composition of the main principles and applications of astrology taken from several sources, in some instances

somewhat untidily. He never fully develops the methodology of judgement, offering mostly sets of general rules or lists of qualities and effects of the various planetary configurations. Gonzaga's text collects the ancient tradition rather than revises it and focuses on the doctrine of astrology rather than its acceptance as a proven knowledge. Being in many ways a product of its time, the text, however, overlooks many of the discussions that challenged astrology's claims as a science in this period. He does not discuss the new astronomical discoveries of the previous century and their possible impact on astrology, neither does he address the new theories of physics.

An active defender of astrological practice, Gonzaga nonetheless displays a lack of novelty and a strong grounding in the traditional Aristotelian principles that make his discussion of astrology somewhat odd and displaced in time. This is particularly noticeable considering that it was part of a mathematics and astronomy programme, that would be expected to discuss these topics, at least partially. In this sense his text transmits a certain inadequacy that is not present in any of his predecessors.

Table II.24 – List of authors of astrological and astronomical works cited by Luís Gonzaga

Albumasar	Heinrich Rantzau
Alcabitius	Jeronimo de Chaves
Andrea Argoli	John of Saxony
Anton Maria Schyrleus of Rheita	Luca Gaurico
António de Najera	Lucio Bellanti
Athanasius Kircher	Manuel de Figueiredo
Avicenna	Messahallah
Christopher Clavius	Pedro Ciruelo
Claude Dechaes	Peter Apian
Gerolamo Cardano	Robert Fludd
Giovanni Battista Riccioli	Simeone Majoli

A Jesuit astrology?

Having explored the lessons of Santo Antão, their discourse, intellectual basis, and rapport with other Jesuit writings on astrology, some questions arise: is there such a thing as a Jesuit astrology? Is the Jesuit teaching a new form of astrology? Does it have specific aspects that give it a Jesuit identity? Even to attempt to answer these questions the corpus of the Jesuit astrological teachings must be defined, and its most noticeable features highlighted.

The most evident aspect of the Jesuit approach to astrology and its teaching is its lawfulness towards the faith. In all its components it is guaranteed that the astrology being taught is one completely in accordance with the precepts of the Church. All authors have this

in mind and follow it through. Their arguments for astrology are always those of an informed Christian scholar. Only Gonzaga, who is working more than a century away from the prohibitions, includes certain concepts and interpretations that would be most likely considered to infringe on free will or stand right on the threshold. Even though, they still conform to a tolerable level of ambiguity that was always present in astrological practice throughout the seventeenth century. In no instance does Gonzaga venture into the intolerable practices of interrogations or elections that infringed on the free will of others.

Technically speaking, two distinct approaches can be identified. The first is that of the earlier teachers of the *Aula da Esfera*, Delgado, Dias and Fallon – also present in Sempill's text. They were all teaching in a period close to the issuing of the anti-astrology bulls, and all followed closely the Ptolemaic tradition. The *Quadripartitum*'s structure and doctrine is always presented as the cornerstone for their work, as the *Almagest* was for the sections on astronomy. On an external level this is perceptible in the arrangement of the teachings which attempt to mimic that of the *Quadripartitum*: first, general principles, followed by weather and then nativities. On an internal level this can be seen in the form that concepts such as triplicities and terms are addressed, as well as by the importance given to typical Ptolemaic doctrine such as affinities, chariots and almugea.

Another strong indication is the supremacy of lunations and eclipses over the planetary conjunction in the judgements of weather and worldly conditions. In this vision of a true and proper astrology there is a strong emphasis on the natural explanations of the effects of the stars, planets and signs in the inferior World. This was based on the principles of natural philosophy, many of which constituted Ptolemy's account of the astrological system, as well of his commentators; to these were added other more modern explanations, such as the rules of optics to explain the different strengths of the planets in the houses. This provided the natural and scientific rational for proper astrology, which, being founded on natural principles, would not be against any strictures from the Church and could be deemed as truly scientific. All other non-natural explanations were seen as superstitions, foolishness or errors of the ancients and readily discarded.

Some of these 'non-natural' principles were more resilient than others. Some, like the planetary hours, are briefly mentioned for tradition's sake or for the knowledge of the student. Others crept in from time to time, since they had been for so long a standard part of astrological practice that they were not as easy to discard. Among these are the significations of the houses.

Most of the time they are either despised or only mentioned as a relic from the past; thus, any significations of children, marriage, friendship and so on are considered foolish and rejected. However, when it comes to medicine the sixth house maintains its signification of sickness and the eighth house its connotation with death, meanings that should have been discarded together with the rest. Here can be seen some of the difficulties of the Jesuit teachers and practitioners in their quest to naturalise the entire doctrine of astrology. Not all practices or components of astrological doctrine, still considered valid, could be simply explained by a natural rationale. Yet that did not deter them from using and teaching them as long as the precept of human free will was not infringed. Even more polemical astrological techniques, such as those for measuring life span, such as the *alcocodem*, were at least partially tolerated and their presence was notably dependent on the opinion of the author. Interrogations are never included or discussed, but elections are briefly mentioned, and Dias apparently addressed them in his lost fourth treatise. These would be evidently natural elections for the use in medicine and agriculture, and perhaps navigation, as Sempill notes in his chapter on astrology. In all cases of the teaching of astrology, the doctrine is presented in a syllabus of three sections: first, the explanation of the foundation principles of astrology and their natural rationale; second, the chief techniques for astrological weather forecasting, based on Ptolemy's doctrine; and third, the rules for the natural judgement of nativities, focused only on natural inclinations and medical practice. In this context medicine is either included in the nativity section or presented separately in a fourth section discussing specific astrological techniques for the judgement of the nature and development of a particular disease.

The second approach to astrology is that of Gonzaga, who collects in a more eclectic manner the main doctrinal corpus of astrology, albeit filtered by the many opinions of sixteenth- and seventeenth-century authors. A transition between the two is perhaps noticeable in the authors writing in the mid seventeenth century, such as Riccioli, Schott and even Kircher; however, they only addressed astrology partially, offering some of its general principles, but no presentation of the doctrine of judgements, which does not allow a conclusive comparison.

Gonzaga, though generally following a similar line, becomes more of a guardian of tradition, collecting and transmitting the wisdom of astrology for the new students of the art. His collection, differently from his predecessors, is much wider both in terms of its components and their significations. Many of his significations of the signs and planets regarding nativities, as well as the many listings with the meanings of the planets and signs in the houses are similar

to the later additions to Fallon's text in the BNP Cod. 4331 manuscript. Nevertheless, the same set of topics present in the other authors can be identified in Gonzaga's *Theatro astrologico*: foundations of astrology, weather forecast, nativities (with a slightly more liberal approach) and medicine.

Another perspective on astrology not present in the early authors and not evident in Gonzaga's writings is the use of symbolic and emblematic significations. This becomes more common in the second half of the seventeenth century and entails a more figurative and neo-Platonic interpretation of astrology's symbols, as exemplified by Kircher's works. In this approach the signs, the planets, and the constellations become hieroglyphs endowed with meaning by their own allegoric representation and semiotic content. The writings of the Jesuit Valentin Stansel, who also taught at the *Aula da Esfera*, provide some examples of this practice; however, aside from his judgement on comets of 1689 and some pages in the *Uranophilus*, he left no text on astrological doctrine that would allow a comprehensive view on the use of this form of interpretation in a Jesuit context.

Leaving aside Gonzaga, who is from a different period in terms of the role of astrology in the sciences, there is enough data to characterise what we can call a Jesuit astrology, or at least a Jesuit approach to astrology. Having as a base the lessons by Delgado, Dias and Fallon, and also considering the brief exposition of the doctrine by Sempill and Schott, Stansel's summarized canons of medicine, as well as the astrological contents of the manuscripts by Clavius and by Borri, a model syllabus emerges:

Table 11.25 – Main topics of a Jesuit astrology curriculum

Sections	Main topics	Jesuit authors
Introduction	<ul style="list-style-type: none"> • Definition of astrology and its placement within mathematics • Lawfulness before the church • Astrology as a valid form of knowledge • Need for and usefulness of astrology 	<i>All authors address this in one form or another</i>
The astrological figure*	<ul style="list-style-type: none"> • The celestial figure • Calculation of the figure • Placement of signs, planets and stars 	Clavius Sempill Fallon Schott Gonzaga

Principles of astrology	<ul style="list-style-type: none"> • The zodiac and the twelve signs • Nature of the fixed stars • Natures of the planets • Essential dignities • Accidental dignities (including aspects) • The celestial houses • Lunar Nodes • Lot of Fortune • Planetary hours* 	Delgado Sempill Fallon Schott Gonzaga
Weather forecast and Revolutions of the World	<ul style="list-style-type: none"> • The triplicities, signs and planets associated with regions and cities • Judgement of eclipses • Notes on comets* • Astrological judgement of the year • Judgement of monthly conjunction and oppositions • Daily judgements of weather • Judgement by observable signs 	Delgado Borri Dias (lost) Sempill Fallon Stansel Gonzaga
Nativities	<ul style="list-style-type: none"> • The nativity figure • Computation of the conception figure • Judgement of the conception figure • Rectification of the nativity time • The almutem or lord of the nativity • Hyleg and alcocodem • Temperament and inclinations • Physiognomy • Judgement of health • Directions • Profecions • Revolutions • Other methods: transits and firdaria* 	Delgado Dias Sempill Fallon Gonzaga
Medicine	<ul style="list-style-type: none"> • The decumbiture figure and critical days 	Delgado Borri Fallon Stansel (partially) Gonzaga
Elections	<ul style="list-style-type: none"> • Medical operations, agriculture, travel 	Dias (lost) Sempill

* these topics are sometimes omitted

It could be asked if this Jesuit curriculum would be any different to any other astrological curricula. An honest answer would be ‘not entirely’ – in overall structure they are almost indistinguishable to those presented by authors such as Ciruelo, Magini, Nabot and Origanus. It can be argued that astrology is one and the same and there are not many different ways of presenting its doctrinal content in a pedagogical form. However, differences can exist in particular technical choices, as well as in the underlying philosophical principles.

Therefore, resuming the initial question of if there was a Jesuit astrology, it can be concluded that the astrological teachings of the *Aula da Esfera* do display a distinct Jesuit identity. The difference of the Jesuit curriculum resides, not so much in the astrology itself – which in the aforementioned words of Manoel de Figueredo, is ‘one and the same’ – but in its philosophical and moral heart and its mathematical body. Firstly, and perhaps above all, it is a Christian astrology: it stands as a syllabus tailored for a moral and pious practice, avoiding and clarifying any ambiguities between Christian faith and astrological practice. Secondly, it is a scientific astrology: its doctrine follows reason and it is explained by natural principles, casting out dubious and superstitious practices and explanations. Thirdly, it is a mathematical astrology: embedded and supported by proper knowledge of the mathematical sciences, the soundly studied principles of astronomy, and the proper use of instruments and tables.

This ideal was not an easy one to implement. The general principles of astrology could be to some extent fitted to adjust to these parameters, and in many aspects, this was accomplished, even considering the difficulties with the house significations and some of the essential dignities. The section on the universal uses of astrology such as weather forecasting was perhaps the most straightforward of all sections. Any challenging component of the astrological doctrine was cleared by good old straight Ptolemaic doctrine. Yet, for human births this was not so easy. While the astrology of weather forecasting was for the most part in line with the idea of a natural astrology, the matter of free will loomed over the doctrine of births rendering almost all traditional judgements forbidden. Therefore, what is presented is a version trimmed to fit both the canons of the Church and those of natural reason. Nativities are judged in the context of medicine, merely regarding natural complexion, inclinations, physiognomy, and health. Any other topic, such as vocation and social status, is only addressed as a possible consequence of natural inclinations, or not at all. Following the same line of reasoning, the traditional methods for prediction in nativities are used only to determine moments of strength and weakness in terms of health and bodily conditions. The prediction of the moment of death is not considered or, at most, taken very cautiously as a possibility.

There is also another, less noticeable and apparently less consequential, aspect of the Jesuit astrology proposed by the lessons of Santo Antônio. In a more technical perspective, some of the core concepts of the astrological doctrine are also modified as a result of this naturalisation process of astrology. There are not many clear examples of this adaptation originated by Jesuits, as they become diluted in the diverse changes which abound in sixteenth

and seventeenth-century astrology. One example is the primary use of the celestial houses, not for the attribution of signification to the planets, but only for measuring the intensity of the planet's influence. This is not a novelty in astrology, but its emphasis is; and all Jesuit authors, from Clavius to Schott, state this as the basic function, or even the only function of the houses. Even if this concept was not originated by Jesuits, it was one they adopted wholeheartedly. Another noticeable example is the method to time the influence of an eclipse. This new natural measurement postulated that all influences of solar eclipses could not outstretch a solar year, and that of the lunar eclipses, no more than a lunar month. This appears to be an experimental methodology proposed by Delgado on the grounds that the influences of these phenomena could not surpass the duration of the natural cycle of the eclipsed luminary. This method was followed by Fallon, and most likely by Dias, but the extent of its acceptance is unclear.

In spite of its clarity, the Jesuit ideal of a true astrology had to face the hard proof of practical application. For the most part it is based on standard models of astrological judgement; however, it had to contend with a heavyweight and longstanding tradition not entirely compatible with Christian precepts, or the desired natural cleanliness. This confrontation forced the tight principles of this Jesuit astrology to be bent and adjusted to make it accessible and practicable in the real world. This is evident in the very first model proposed in Delgado's lesson. This is not a problem exclusive of the teaching of Santo Antão or of the Jesuits, but one transversal to all astrological practice of the sixteenth and seventeenth centuries. On the one hand, it is an outcome of the late fifteenth-century trend for the renovation of astrology, of which Pico's *Disputationes* only served as a further catalyst; on the other, it was also a consequence of the religious aspect of this revision that had also been present throughout the sixteenth century, but became a major defining force with the Index and the bull of 1586. Because of the evident religious context of Santo Antão, the adherence to the strictures in their approach to astrology was much tighter. At the same time, the astrology of the *Aula da Esfera* is an erudite form of astrology, taught by experts in mathematics and astronomy, well trained in both theology and natural philosophy. Therefore, the discussion of the natural principles of astrology was a strong presence in their writings.

The astrology teaching of Santo Antão, being a complete example of a Jesuit astrological programme, discloses the main problems that a Jesuit scholar had to face in order to include the practice of astrology in his studies, either as part of his teaching activities, or as a practical tool. It is also revealing of the image of moral correctness and scientific precision that they wanted

to transmit when dealing with astrology, as well as of the methodologies used to accomplish this. By preserving the practical facets of this discussion, the lessons of Santo Antão stand as a good example of the coalescence between the religious and the scientific views on the function, limits, and structure of astrology, here presented from a Jesuit point of view.

The astrology lessons in Delgado's cosmological programme appear to be the testing ground of this approach; they are the earliest and were written by someone who personally witnessed the emergence of the religious strictures. He reveals by his own words that there was a time that astrology was not taught in Santo Antão because of its dubious status regarding the Church. As a result, in the same manner that, being a follower of Clavius, he was an astute defender of the mathematical sciences, he was also a fierce advocate of the scientific and religiously sound practice of astrology, arguing for several reforms in its doctrine. The question remains whether he was the originator of this Jesuit model of astrology or only its first known promotor. He certainly appears to have been an active developer of what can be called a Jesuit approach to astrology. His text presents clear distinctions from the other authors and the depth of his argumentation is followed neither by any of his successors in the *Aula da Esfera*, nor by those writing in print.

The closest instances of the teaching of astrology by another Jesuit are the Milan lessons of Christophoro Borri, which date from 1612, and those by Dias who is teaching in Lisbon around 1613. Dias succeeded Delgado in the *Aula da Esfera*, and part of his material comes directly from him, so there is a close connection between the two men. Borri, as far as is known, never had contact with Delgado, but his teachings follow the same guiding principles of a natural and Christian astrology. Borri wrote only a short treatise discussing in a few pages the definition, placement and validity of astrology, weather forecasting, and medicine, choosing in the latter not to deal with the problematic topic of nativities and addressing instead the judgement of diseases. His opening discussion of astrology follows closely that of the *Commentarius* by Clavius, which becomes a common denominator between Borri and Delgado. It is possible that Clavius and the mathematical tradition of the Collegio Romano were the source for this model. Given that Clavius included elements of astrology and discussed it more freely in his manuscript lessons, it is well possible that Delgado's astrology teachings are mirroring an unseen tradition on the study and teaching of astrology in the Collegio Romano. This is a hypothesis that requires further research, but the lineage of the Santo Antão lessons together with Borri's notes and the printed writings of authors such as Sempill, Schott and

Stansel, lift a veil from an unacknowledged facet of Jesuit education: the teaching and transmission of astrology. The almost homogeneous approach to astrology in the Jesuit manuscript and printed tradition, whatever its origin might be, strongly suggests that an approved version of astrology would have circulated within the Society. Therefore, it appears that in the same manner that the Jesuits reformed the education on mathematics and astronomy, they also made an attempt to re-evaluate and reposition astrology within their teaching system. This was not as perceptible as with other sciences due to the complicated status of astrology in respect to the Church; furthermore, among the Jesuits themselves there were opposing views regarding this subject. In face of these conditions, it is well possible that most of the Jesuit teaching of astrology remained private and thus less visible. The printed works only provide a glimpse into the astrological knowledge of the Jesuits, but in cases such as Santo Antão, as well as the Imperial College of Madrid and the Mission in China, this knowledge of astrology emerges revealing its presence within the Jesuit community of scholars.

A wider comparison of the Jesuit astrological programme with other astrological trends is a task outside of this work, whose focus is to call attention to, and highlight the existence of a debate, practice and teaching of astrology by members of the Society of Jesus. To compare it to other practices and teachings, more than what has already been done, particularly in Chapter 11, would require a better knowledge of the many facets of early modern astrology. As noted in the introduction, so far this is still research to be done in a comprehensive form. It would imply an in-depth technical survey of other teaching instances and of the numerous manuals of astrology published in Europe during the late sixteenth and seventeenth centuries, not to mention the vast number of astrological manuscripts of this period. Such a study would allow a much more ample characterisation of the various practices of astrology, and thus a better understanding of the placement of the Jesuit teachings within them.

To further differentiate the Jesuit approach to astrology, an important and perhaps first step would be a comparison with the teaching of astrology by other religious orders. Here, the philosophical and religious setting would be similar, and it would be interesting to compare practices. Likewise, it would also be important to compare the Jesuits' pre-university teaching with that of other similar institutions, and similarly to the astrological teaching at the university level. This will be the goal of a future research project.

The differences between the practice and teaching of astrology in Catholic and Protestant areas would have to be carefully considered. Some Protestant denominations, such as Lutherans

were generally favourable to the practice of astrology, while others, such as the Calvinists were not. There are some detailed studies on the English practices, but this is a comparison between two utterly different realities, both religiously and politically, which will certainly yield considerable differences. The practice of astrology in seventeenth-century England can be widely characterised by a lack of regulation, both from religious and political perspective, due to the Interregnum. This allowed the public practice and teaching of interrogations and the widespread publications of political predictions, something subject to intense scrutiny in the Catholic kingdoms. Thus, many of the elements of the astrological tradition rejected by the Jesuit authors appear as commonplace doctrine in English astrological manuals of the same period.

Still, it can be safely stated that Jesuit astrological teaching presents a highly developed moral and philosophical stand, backed up by rigorous mathematical and astronomical knowledge, offering a Christianly licit and practical foundational knowledge of astrology to be applied to the prognostication of weather, personal inclinations and medical conditions.



PART IV. JESUIT ASTROLOGERS

The manuscript lessons of Santo Antão, those by Cristoforo Borri, as well the astrology book by Schall von Bell printed in China provide a unique window into Jesuit astrological thinking and education. However, an important question remains: what about practice? Were these Jesuit scholars also astrologers? The above study of the Jesuit astrological teaching materials strongly suggests that at least some of them were not just making theoretical considerations about astrology, but they also had experience in its practice. As mentioned before, many of their teachings and points of view on astrological theory are likely to be based on personal experience. This is quite evident in the teachers of the *Aula da Esfera*, since they always discuss the astrological doctrine from a practical point of view in the sanctioned areas of weather forecast and medicine.

This last section of this research provides some examples of these practices. Texts that only use astrology as a rhetorical device, such as some of the sermons addressed in Chapter 9, will not be considered here, although they can at times provide valuable information as to the author's knowledge of astrology and give evidence of some kind of astrological practice. The texts under scrutiny here are those that involve the calculation of astrological charts or at least the computation of some kind of planetary configurations, such as judgements of comets, eclipses, and other phenomena.

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Chapter 12. Practicing astrology

Most of the astrological documents offering practical examples are by anonymous authors, making any connection to Jesuits difficult or impossible. Thus, direct testimonies of astrological practice by Jesuits are not many, although future research might increase their number. There are, however, enough examples where this link can be safely established, and others where it is highly probable. Some of these have already been mentioned in Part Two. They include the judgements made in China by Schall Von Bell and Ferdinand Verbiest for the Chinese imperial court (discussed in Chapter 8), and the astrological remarks on comets by Eusebio Kino and Valentin Stansel (Chapter 9). To these can be added five additional astrological writings by Jesuit authors, including two additional cometary judgements, a report on an eclipse, a printed almanac, and the judgement of a nativity.

Judgements on comets

The judgements of comets are among the most common astrological documents of the early modern period, existing both in manuscript and printed form, from the simplest mentions in almanacs to the more erudite publications solely dedicated to their study. By the end of the sixteenth century and the first half of seventeenth century, the nature of comets, as sublunar phenomena or as celestial objects, was under intense debate. Yet, whatever stand was taken, they were almost always the focus of astrological scrutiny.

In this context it is not strange to find that many Jesuits, experts in mathematics and astronomy, address these phenomena not only from the astronomical, but also from the astrological point of view. For example, Johann Baptist Cysat, famous for his observation of the comet nucleus, does not address astrological judgements in his text on the comet of 1618. Yet, he makes some remarks on their interpretation in a final *parergon*.⁷¹⁰ He believes in the possibility of prognostication but notes that the judgement of the effects of comets is uncertain and one should not be brash in such prognosis, considering also that, beyond their natural meaning, comets are also signs from God. This a perspective that he shares with other Jesuits, such as the celebrated preacher António Vieira, who discusses comets and their meaning in both his letters and his sermons. Cysat even offers some technical details on interpretation by

⁷¹⁰ Johann Baptist Cysat, *Mathemata astronomica de loco, motu, magnitudine, et causis cometarum qui sub finem anni 1618. et initium anni 1619. In coelo fulsit; ex assiduis legitimisque variorum phaenomenorum observationibus deriuata* (Ingolstadt: Ex typographeo Ederiano, 1619), 83–84.

noting that the effects of the comet will be mostly experienced in those regions that either have the comet perpendicular to their horizon, or over the horizon for a greater amount of time.

Further details of these technical remarks are present in the astrological interpretations of the comet of 1680-81 by Eusebio Kino, as well as in the judgement of the comet of 1689 observed in Bahia, Brazil, by Valentin Stansel, both mentioned in Chapter 9. Stansel's text is particularly important because of his direct connection to the *Aula da Esfera*, where Stansel taught from 1658 to 1663. Among the teachers of the *Aula da Esfera*, Sebastião Dias dedicates an entire treatise to comets with a clear focus on astrological interpretation: *The astrological treatise on the comets* (fols. 1r-19r) in Egerton MS 2063. This is perhaps the most extensive text of this nature written by a Jesuit. Luís Gonzaga also wrote in 1705 a treatise on this matter, although smaller, and also focused on the astrological interpretation of comets (as seen in Chapter 10). Furthermore, like Stansel, Gonzaga also wrote a judgement on a comet providing another valuable testimony of astrological practice by a teacher of the *Aula da Esfera*.

Judgement of the 'phenomenon' of 1702

Among the various astrological and mathematical texts by Gonzaga gathered in BA Ms. 46-VIII-22 there is a small judgement (fols. 129r-131v) titled *Juizo de hum novo Phenomeno visto sobre o horizonte de Lisboa* ('Judgement of a new phenomenon seen over the horizon of Lisbon'). In this text Gonzaga gives an account of a comet-like phenomenon he observed on 25 February 1702 at 7 p.m. and the following days; the comet was still visible when he was writing his observations on the 8 March.

Gonzaga's judgement is typical of the Jesuit astrological texts. It begins with a series of considerations on the nature and astronomical data of the observed phenomenon. From folios 129r to 131r he describes the phenomenon and its position and measurements. He calls it a 'beam' (*trave*), since he cannot observe the head of the comet and offers several explanations for its appearance, citing authors such as Tycho, Riccioli, and Cysat.⁷¹¹ This is followed by the interpretation of its effects.

Because Gonzaga is not sure if he is dealing with a comet or a minor phenomenon, he is cautious in making a judgement:

Regarding its influences, whose effects are those that on such occasions curiosity most seeks to know, I say that these prognostications are not usually made but of comets,

⁷¹¹ According to the entry on Kronk's catalogue, this comet its thought to have been as sungrazer since the head was not observed. Luís Gonzaga account of the comet was so far unknown, and he appears to be one of its earliest observers in Europe. See Gary W. Kronk, *Cometography: A Catalog of Comets. Volume 1: Ancient-1799*, vol. 1 (New York: Cambridge University Press, 1999), 387.

having in mind their figure, colour, place, magnitude and manner; and since up to now we have no comet, judgements should not be made, although I believe that most likely phenomena similar to these are not distinguishable from comets except mostly by accident. And because I think the matter that forms these beams is the same as that of which the comets are composed. Therefore, the formation or non-formation of a comet out of this matter is only due to it being more or less dense and [thus] able to receive to a greater or lesser extent the intensity from the solar rays.⁷¹²

Yet, because he believes that the matter that composes both types of phenomena is one and the same, there is some possibility for a judgement to be produced. However, there are some religious and scientific caveats to consider:

... and because of this principle there is still a place to make some judgements, for the matter that constitutes the comets is the same as that from which these beams are formed. However, this always implies the discussion of contingent futures, whose knowledge God reserved for Himself and for those to whom He wishes to reveal it. Not even the wise mathematicians, that know the subtlety of such prognostications waste much time in this, as states Father DeChales (book 8, chapter 27): *We have seen comets after which follow neither war, nor famines, nor plagues, nor other similar things. On the other hand, frequently bad things happen without any comets being seen. It is, therefore, an error of the common people to be assailed by fear by all unusual things.*⁷¹³

His citation of this passage of Claude DeChales' book, shows that Gonzaga is well aware that his fellow Jesuit's views are not favourable to astrology. As pointed out before, Gonzaga does not engage him in the defence of astrology he presents at the beginning of his lessons, choosing to contend with much older anti-astrology texts. Yet, despite DeChales' opinions, Gonzaga believes that a judgement of this phenomena is valid, and he is determined to provide one. Citing John of Damascus' opinion that comets are signs from God, and bearing in mind the variability of effects that a comet may present, he proceeds:

Applying this to the present case, I will only mention [here] that which is fitting according to what the authors state, and to what I think can be applied to it. I'm not sure if appropriately – I pray to God that I might be wrong – I will write in Latin, so that in this way the learned may understand me, and I avoid giving a chance to the less wise of [engaging in] some superstitions. [the text changes to Latin] They signify a great change also in sublunary nature, whose effects will be produced very soon; it signifies also sterility caused by drought, wars, heatwaves, turbulences. The king of some kingdom, or

⁷¹² No que toca a suas influencias, cujos effeitos sam os que a curiosidade em semelhantes occasioens mais procura saber; digo que estes prognosticos senão costumam fazer senão dos cometas tendo respeito a sua figura, cor, lugar, grandeza, e modo; e que com athe o presente não tenhamos cometa; não ha de que formar juízos, e fazer prognosticos; e ainda que eu julge por muito provavel que semelhantes fenomenos a este senão distinguam dos cometas se não muito accidentalmente; por me parecer que a mesma materia, de que se formam estas traves he a de que se compõem os cometas; de tal sorte que a formarse, ou a não se formar cometa desta materia so provem de ella estar ou não estar mais densa, e capas de receber maior, ou menor intenção dos rayos solares (BA Ms. 46-VIII-22, fol. 131r).

⁷¹³ e por este principio ficar ainda lugar para se formarem alguns juízos, pois a materia que influe nos cometas he a mesma de que se formam estas traves, com tudo sempre he fallar de futuros contingentes, cuja sciencia reservou Deus para si, e para aqueles a quem a quer revelar. Nem os Mathematicos sezudos e que conhecem a sutilidade de semelhantes prognosticos gastam nisto muito tempo; como diz o Padre DeChales. DeChales, Lib. 8 prop. 27: *Vidimus cometas, post quos nec bella, nec fames, nec pestes, nec alia similia secuta sunt. Contrà saepè haec mala accidunt nullo denuntiante Cometâ. Est ergo error vulgi, que ex omnibus rebus insolitis occasionem timendi arripit* (fol. 131r).

one of its princes will die. An external enemy will invade the lands, and finally a disease which is difficult to cure.⁷¹⁴

Gonzaga lists several kingdoms and cities where the effects will be mostly felt. He believes that it will not have many repercussions in Portugal because the phenomenon is not vertical to its latitude, although it might have some effects due to its passage in the sign of Pisces, attributed to Portugal, and due to its proximity to Saturn (positioned in Pisces at this time next to the comet). He finishes by saying that, according to the doctrine of Ptolemy, the little or nothing that would come out of this comet will soon be over because it sets quickly in the horizon.

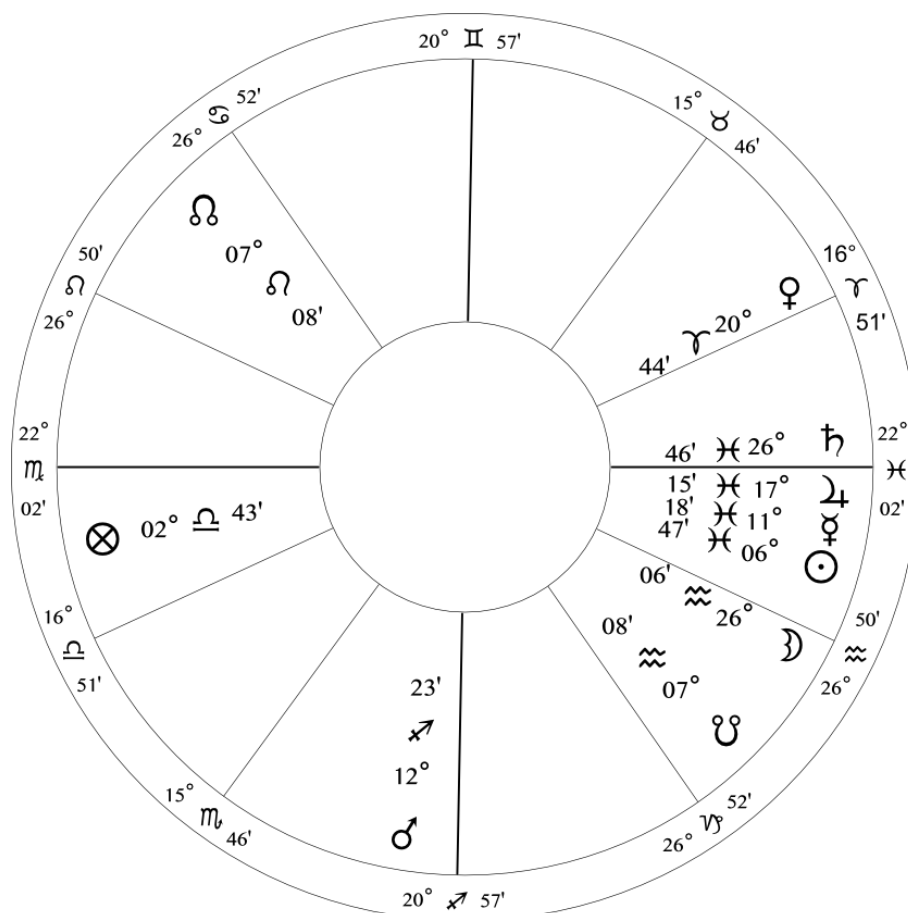


Figure 12.1 – Astrological figure for the first observation of the comet by Gonzaga

A modern calculation of the chart for 25 February 1702 at 7 p.m. (Rational houses) shows the observation took place just after the sunset and confirms the position of the comet in the sign of Pisces together with Saturn.

⁷¹⁴ O que posto no presente caso so refirey, o que julgo lhe compete segundo o que os authores dizem, e a mim me parece se lhe pode aplicar; nao sej se com rezam: prezo a Deus que me engane; ponho o seguinte em Latim porque assim o entendem os doutos e evito a occazião de algumas superstições aos menos sábios. Magnam significant mutationem et in natura sublunari, cuius effectus quam primum sunt prodituri, significat etiam sterilitatem ortam a siccitate: bella, aestus, turbulentias. Regni alicuius rex, aut ex principibus regni aliquis morietur. Externus hostis regiones incursabit, morbus denique non facilis expulsionis (fol. 131v).

He is very defensive in this judgement, deciding to write it in Latin so that it will only be read by educated readers capable of understanding it. Additionally, he also chooses not to explain the astrological rationale behind it so that the more gullible may not take it as a definite prediction instead of mere conjectural evidence. His reason is that many of the usual parameters used in comet interpretations to provide a more thorough study, such as shape and colour, are missing in this case. With these words it becomes clear that, despite his indisputable interest in astrology and its practice, Gonzaga is concerned not only about its effects, but also about his own reputation as a practitioner, a fact that he does not betray in his other texts.

The comet of 1681

Gonzaga's and Stansel's judgements are not the only examples of its kind. The collection of the Ajuda Library includes another such text in BA Ms. 54-IV-33, n°56, catalogued under the title: *Manuscripto muito curiozo que trata dos cometas* (The most curious manuscript on comets).⁷¹⁵ This codex contains two illustrated astrological judgements, the second of which (BA Ms. 54-IV-33, n°56b) appears to be of Jesuit authorship according to the motto *ad maiorem Dei gloriam* at the end of the text. Presenting the long title *Volta & Tornada do Cometa Passado Que apareceu no Anno de 1681 Reducido & Reresentado [sic] & Explicado por anno presente, e os mais que se seguem* (Return and comeback of the past comet which appeared in the year of 1681, summarized, and composed, and explained for the present year and those that follow), it concerns the astrological interpretation of the great comet of 1681 (fols. 5r-11v). This comet was visible from November 1680 to March 1681 and caused a great impact for its dimensions and its magnitude. The text, however, was written four years after the comet's sighting, sometime in the last two months of 1685.⁷¹⁶ The text is illustrated by a large two-page monochromatic watercolour (Figure 12.2), painted in shades of rose with golden highlights (fol. 5v and 6r).

It begins with a small preface where the author describes the celestial movements, comparing them with a clock mechanism and differentiates between the expectable planetary

⁷¹⁵ The two texts and their illustrations were previously discussed and published in Ribeiro, 'Comets and Prophecy: A Combination of Art, Science and Astrology in Seventeenth-Century Portugal'. In that paper I presented the two texts as being of Jesuit origin. A revision of these early conclusions show that the first text has no indication of Jesuit authorship and for that reason it will not be presented here. However, the Jesuit authorship remains a possibility due to 1) the similar style of combining astrological judgement and biblical discourse, 2) being written in the same year, and 3) having in common themes regarding the succession to the Portuguese throne.

⁷¹⁶ The text states 1685 as the current year (fol. 8r) and mentions among various events the Edict of Fontainebleau which was issued on 22 October of that year (fol. 9v-r).

movements and the extraordinary phenomena, such as comets and *novae*. He then associates comets and this type of unpredictable phenomena to angels and divine signs:

All the divine machinery of the heavens that we see night and day turning around the Earth as if it is its centre, can be compared with due proportion to a clock made of wheels that move by the weight that was impressed on to them by the most powerful and miraculous hand of its divine architect at the beginning of His creation. By means of this disposition, the celestial bodies turn without ever stopping and they shall continue their unequal turns according to the impulse, exertion and release given onto them until the last day of this universe. This we must consider only of the planets and the fixed stars of the firmament, but not of the comets which are new phenomena and unexpected stars, either newly created or newly appeared, as we can say to be the most likely in the opinion of certain authors. They state that the comets are angels in disguise, or better yet, dressed in stars, that descending from the high heaven, present themselves to Men in this form, warning them, and more often threatening them with the future events and punishments that God in His decrees and divine justice has determined against their sins. ... Thus, said authors argue and state that when comets appear, they are the same angels, but not the same stars; and with their change of garments and signs, they prognosticate and cause the various effects that after their appearance we experience.⁷¹⁷

The author of the text is not as concerned with the astronomical details as Stansel and Gonzaga, or even Kino who writes on the same comet. The purpose of the text is the interpretation of the effects of the comet in its role as a divine herald. He starts by explaining that, according to astrological theory, the comet's effects will extend for four years, because it was visible for four months. Therefore, its effects extended until 1685, the year in which this text was written, but based on a statement by the Babylonian Sibyl and on the considerable size of the comet, he argues that its effects will continue beyond that period. However, he does not dare to reveal the nature of those effects, for they will be 'inscrutable arcana that God [our] Lord hid in the abyss of his tremendous judgements'.⁷¹⁸ To bypass the complex matter of foretelling, he lists the main events of the past five years, hoping to be able to deduce from them the future effects of the comet.

⁷¹⁷ Toda a divina fabrica dos Ceos que consideramos de noite e de dia dando suas voltas ao redor da terra como do seu centro, se pode comparar com muyta proporção a hum relógio feyto de rodas que se movem pelo pezo que lhe foy impresso pela mão poderosissima e miraculosa do seu diuino Architecto no principio da Sua criação. Por meio desta disposição voltão os Astros sem nunca parar, e hão de continuar suas voltas ineguaes conforme ao impulso, esforço, e libramento que ~~tem~~ ~~re~~ lhe foy dado, ate o dia ultimo deste uniuerso. Isso hauemos de entender somente dos Planetas, e das Estrellas fixas que ficão no Firmamento; mas não dos Cometas, que são nouos Phenomenos, e Astros extraordinarios, ou de nouo nascidos, ou que apparecerão de nouo. O que podemos dizer, ser o mais que probabel, na opinião de certos Authores; os quaes affirmão que os Cometas são Anjos disfarçados, ou por melhor dizer, vestidos com Estrellas, os quaes descendo do alto do Ceu nesta forma representão aos homens auizandoos, e mais vezes os ameaçando dos futuros casos e castigos de Deos nos decretos e Sua divina justiça tem determinado contra seus peccados. ... Donde argumentão os ditos Author[es] e affirmão que quando nascem nouos Cometas, tomão os mesmos Anjos, mas não as mesmas Estrellas; com a qual mudança de trage, e diuersidade de sinais pronosticão, e cauzão os diuersos effectos que depois delles apparecidos experimentamos (fol. 7r-v).

⁷¹⁸ Isso não me atreuo eu de descubrir por serem arcanos inescrutaveis que Deos Senhor nosso guardou escondidos o abismo dos seus tremendos juizos: vejamos com tudo alguns dos effectos dos annos ja passados, e conforme a estes discorrámos sobre os futuros (fol. 8r).

In the religious field, he focuses mainly on the Edict of Fontainebleau, issued by Louis XIV of France. This edict led to the forced conversion of the Huguenots in France, revoking the religious liberties granted to them by the Edict of Nantes (April 1598), issued by his grandfather Henry of France.

In the political field, the author explores several topics, displaying much familiarity with European politics. He organizes these matters in six categories or ‘admonitions’, correlating each admonition to one of the comet’s traits. The first is unclear because those lines were cut off in the binding process of the manuscript. The author relates it to the loss and gain of land by several European powers, mentioning among others the loss of the Netherlands by the Spanish Crown, and the surrender of the Limburg Duchy and Luxemburg to the French crown. The second admonition relates to the comet’s oriental position, signifying the ‘death of kings and princes’ (fol. 9v); among other examples, are included the death of the Portuguese king Afonso VI and queen Maria Francisca Isabel of Savoy, both in 1683. The third correlates the disappearance of the comet’s tail, after its conjunction with the Sun, which he associates with ‘infertility of principal people’ (fol. 9v) not offering examples. The fourth considers the length and direction of the comet’s tail towards the east as omens of the social upheavals in Constantinople, Goa and other oriental lands. In the fifth he associates the curvature of the comet’s tail, bending towards south, with problems in the meridional regions of Europe, namely Italy. The sixth and last admonition relates the small head of the comet and its long tail to the loss of power by the princes ‘who will be governed by their ministers’ (fol. 10r).

In the next segment the author describes the passage of the comet through the signs (from Sagittarius to Taurus) and associating each of them with the geographical locations traditionally ascribed to them. He makes some general predictions regarding some of these regions, but without presenting the astrological rationale behind them. These concern mainly the strengthening of Catholic faith, the conversion of the unfaithful, and the defeat of the Saracens.

The judgement ends with a reference to the comet of 1577 which several authors relate to the defeat of King Sebastian at Ksar el-Kebir (Alcácer Quibir). This is an obvious allusion to the spirit of Sebastianism, which permeated the Portuguese Baroque culture in this period. The author believes that the comet of 1681 has affinities with the comet of 1577, therefore auguring to Portugal ‘the highest hopes of happiness and golden centuries’ (fol. 11v). This is an unmistakable affirmation of the legitimacy of the new dynasty in power since 1640, that in this period had not yet guaranteed the succession.

This text offers a good example of a strongly Christian oriented judgement where the astrological interpretation is greatly interwoven with religious discourse and metaphor. This is clearly a different approach to that of Gonzaga and Stansel, who restrict themselves to predictions on weather conditions and medical circumstances, only making general statements on political events, such as the possible death of someone eminent in Gonzaga's judgement. Additionally, the text is also a good sample of the practice of revolutions of the world in a Catholic context, here applied to politics and the analysis of current events, rather than just weather forecasting. This shows that, despite the admonitions against such type of judgements, their practice was still very much alive in the second half of the seventeenth century, even among the Jesuits.

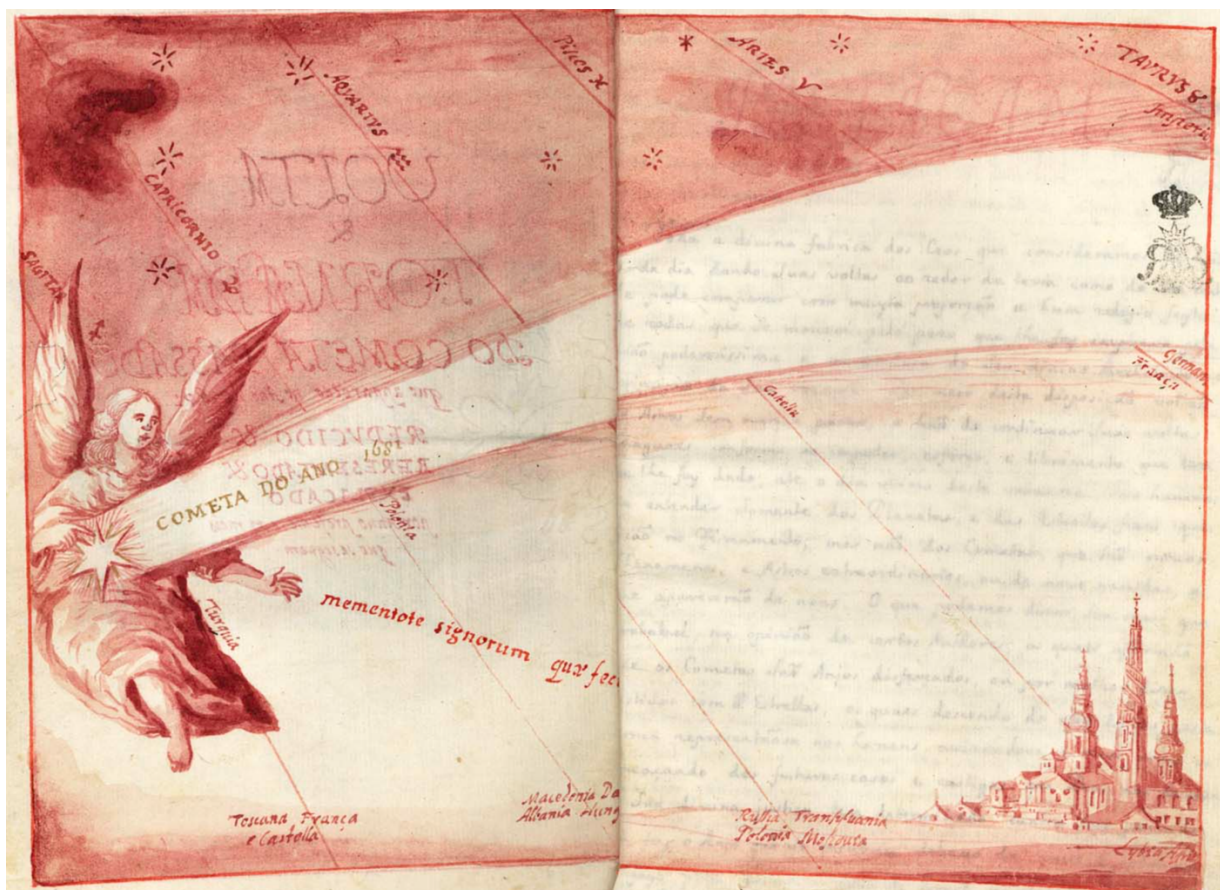


Figure 12.2 – *The comet of the year 1681*, (unknown author), BA Ms. 54-IV-33, nº56, fols. 5v-6r.

The image represents a large comet, with a long tail that completely occupies the diagonal of the composition. On the left side, the head of the comet, represented by a six-pointed star, is carried by a winged human figure, an angel, who points to the right. In the comet's tail it is written 'The comet of the year 1681'; from the angel's left hand flow the words in Latin 'mementote signorum quae fecit' (remember the signs that he made). The sky is divided in six sections by transversal lines; these mark the signs of the Zodiac which the comet transited (from left to right: Sagittarius, Capricorn, Aquarius, Pisces, Aries and Taurus, with the respective symbols). Along these lines are written the regions or nations corresponding to the signs (from left to right: Turkey, Tuscany, France and Castile corresponding to Sagittarius; Poland Macedonia, Dalmatia, Albania and Hungary to Capricorn; Russia, Transylvania, Poland and Moscovia to Aquarius; Castile, Libya and Africa to Pisces; Germania and France to Aries; the Empire to Taurus).

An astrological report to the court

Another example of a text combining astrological interpretation and prophecy can be found in an eclipse judgement offered by a member of the Society to prince Teodósio.⁷¹⁹ Entitled ‘Prognostic of the Eclipse of the Sun 1652; Dedicated to the most Fortunate Prince Don Theodosio’ (*Pronostico do Eclypse do Sol 1652. Dedicado ao feljcissimo Principe D. Theodosio*), the text is preserved in the Biblioteca da Ajuda (Ms. 49-III-20, nº 15a) and in a poorer copy at the Portuguese national archive of Torre do Tombo (Manuscrito da Livraria 1059, fols. 304-321). The Ajuda manuscript, which contains the copy offered to the prince, is decorated with a frontispiece presenting the title and an illuminated astrological chart of the eclipse (Figure 12.3). It contains an astrological report on the solar eclipse of 8th of April of 1652 presenting a study of its effects in connection with several other eclipses and conjunctions.⁷²⁰ The prognostication is centred on the kingdom of Portugal and the prince’s future accomplishments, and it is strongly reinforced by the inclusion of several non-astrological prophecies, in a similar fashion to the judgement of the comet of 1681.

About the author, there is only the information that the text itself provides. He seems to be a former Jesuit because he mentions the year 1549, ‘when I was still in the Society’, and he further says that he was at the college of Coimbra (fol. 12r). He presents a good knowledge of astrology and astronomy, most likely derived from his years as a member of the Society of Jesus. Apart from the astrological interpretations, the author presents several outstandingly astronomical observations which imply training and familiarity with telescopes. He mentions previous astrological studies, such as casting the astrological chart for the crowning of João IV (15th of December 1640) (fol. 6v), providing a clear testimony of the practice of political astrology much in the same line as that of Francisco Guilherme Casmach’s *Almanach prototypo* (discussed in Chapter 9).

⁷¹⁹ Research on this text was first presented in the paper Ribeiro and Leitão, ‘Astrology with New Eyes: The Telescope in Astrological Prognostication’.

⁷²⁰ This was a total solar eclipse visible in all Western Europe: for details see Nasa Eclipse website: <https://eclipse.gsfc.nasa.gov/SEsearch/SEsearchmap.php?Ecl=16520408>. In Lisbon the eclipse had an obscurity of about 88%. There are several accounts of this event, especially in Northern Europe where the occultation was total. A good example is the pamphlet *Annus Tenebrosus* by the English astrologer, William Lilly (William Lilly, *Annus Tenebrosus, or The Dark Year. Or Astrologicall Iudgements upon Two Lunar Eclipses, and One Admirable Eclips of the Sun, All Visible in England, 1652. Together with a Short Method How to Judge the Effects of Eclipses. A True Type of the Suns Great Eclipse. By William Lilly, Student in Astrologie*. (London: printed for the Company of Stationers, and H. Blunden at the Castle in Corn-hill, 1652).), but there are several other publications of this event that became known as Black Monday; most of these contain political predictions. See William E. Burns, “‘The Terriblest Eclipse That Hath Been Seen in Our Days’: Black Monday and the Debate on Astrology during the Interregnum”, in *Rethinking the Scientific Revolution*, ed. Margaret J. Osler (Cambridge: Cambridge University Press, 2000), 137–52.

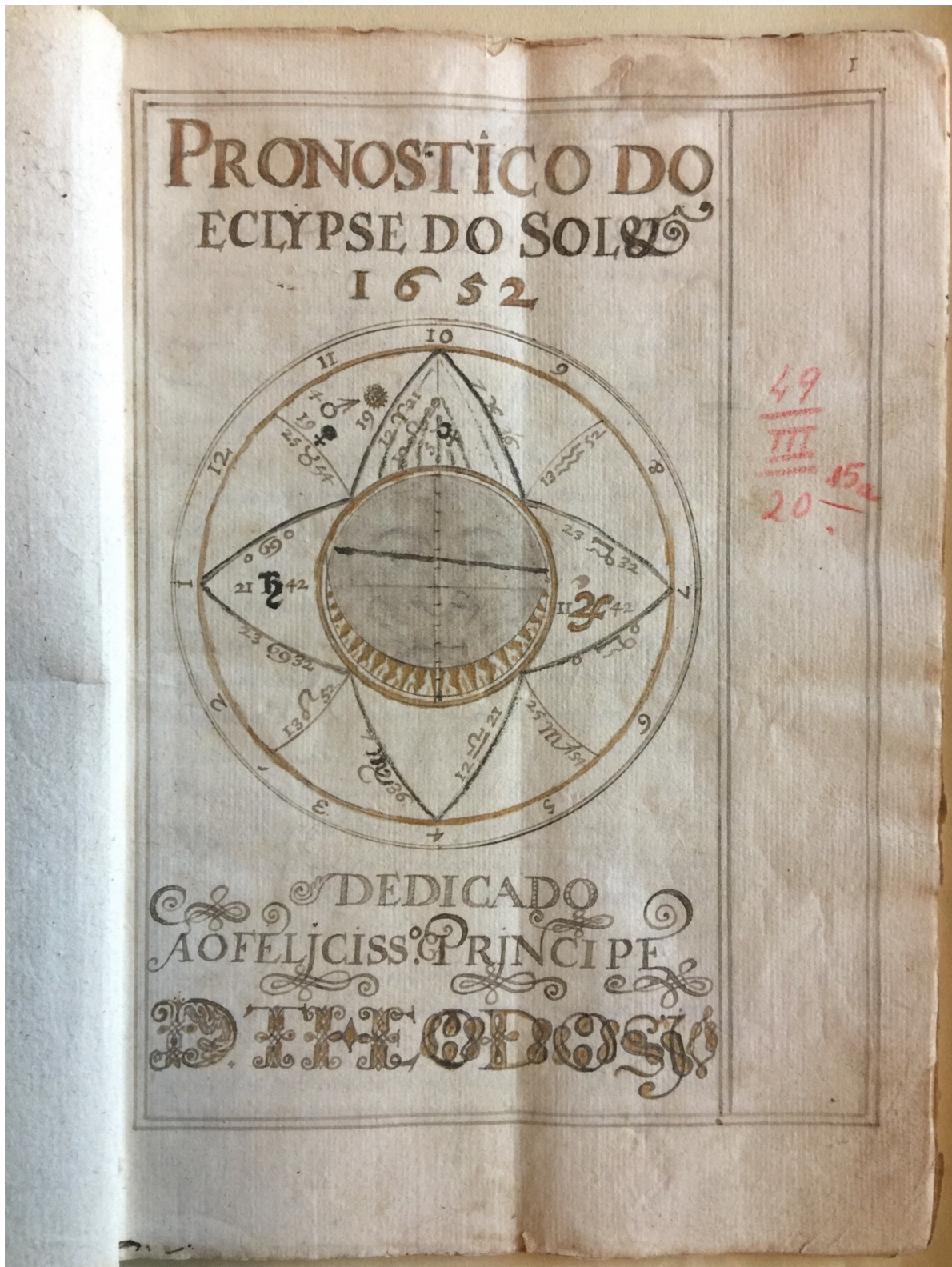


Figure 12.3 – Frontispiece with the eclipse chart (BA Ms. 49-III-20, nº 15a, fol. 1)

The eclipse figure is drawn in a round style and decorated with golden ink. In the centre is a representation of the eclipse portraying the occultation of the Sun together with the measuring its magnitude by means of a scale of 12 units. The path of the Moon is represented by the thick line crossing the shaded area.

The judgement of the eclipse of 1652 is one of several astrological reports that he sent regularly to prince Teodósio, which stand as a clear example of court astrology. Of the other reports, the author gives information on only two: one reporting the same astronomical observations he refers to in the text, and another containing a previous version of this judgement that he now is rectifying. Thus, he begins the report by correcting his previous text on this eclipse. He had initially computed the time of the eclipse as being 8 hours and 13 minutes a.m., the exact time of the Sun-Moon conjunction; but now, having observed the phenomenon, he calculated a new chart for the exact time of the maximum obscurity that he estimates as being at 9 hours 27 minutes a.m. The difference would lead to a different sign in the ascendant (Gemini instead of Cancer) and consequently to a different judgement:

And to not bother your highness with so many calculations, I recompiled all in the present figure, for in the recompilation of the work, its science can be observed; *Orationi breui multum in est sapientia*; I caution you, however, that the first figure I gave Your Highness before the eclipse took place, was erected for the true conjunction which in this court would happen at 8 hours and 13 minutes in the morning; this one that I now offer to your highness, and on which I base this prognostic, is calculated for the middle of the eclipse and apparent conjunction, that with all diligence I observed, and by observation and rules of trigonometry I found to have occurred at 9 hours and 27 minutes, on the morning of [the day] Our Lady of Joy, eighth of this month of April.⁷²¹

The importance that the author places in astronomical precision, reveals his mathematical and astronomical training. As to the astrological procedure, he mostly follows the standard method for judging an eclipse, similar to those laid out by João Delgado and Simon Fallon in their classes. The judgement begins with the rising sign of the eclipse's chart (1), secondly the general effects of an eclipse in Aries (2), afterwards, considerations on where the effects of the eclipse will take place (3), and then the significations provided by the planet ruling the eclipse. To this he adds further considerations of Venus and Saturn (5). These are the five considerations:

(1) The ascending sign in this chart falls between Gemini and Cancer. Taking into account the common astrological chorographic associations, the author associates them with regions which are the focus of his interpretation: Gemini to Castile, and Cancer to the city of Lisbon, Portugal's capital. Since the ascendant exits Gemini (Castile), placing this sign in the 12th house of imprisonment and strife, and moves to Cancer (Lisbon), he concludes that it signifies the rise

⁷²¹ E pera não ser molesto a Vossa Alteza com a proposta de tantas calculacoes recupilei tudo na figura presente por que no recupular da obra se ue mais a sciencia com que e feita; *Orationi breui multum inest sapientia*; advertindo porem que a primeira figura que dei a Vossa Alteza antes que succedesse o Eclypse foi leuantada pera a Conjuncão vera que nesta Corte auia de ser as 8 horas e 13' da manhã, e esta que agora offereco a Vossa Alteza e em que fundo este pronostico he calculada pera o meo do Eclypse e Conjuncão apparente que com suma diligencia obseruei, e pella obseruacão, e regras da Trigonometria achei que foi as 9 horas e 27' da manhã de Nossa Senhora dos Prazeres oito deste mes de Abril (fol. 2r-v).

of Portugal over Spain. This will happen not without some setbacks, as is indicated by the presence of Saturn, a malefic planet, also ascending in the first house:

Let the first heavenly sign be the tropic of Cancer, and [that] in the beginning of the first celestial house is at the end of Gemini and beginning of Cancer. Since the first extends its domain over Castile and has its influence more specifically in the court of Paris; and the one of Cancer in this court of Lisbon. Their influence signifies the fatal ruin of Castile and the destruction of Spain, as many have already prognosticated, [and it is] now [in this chart] contained in the twelfth house. And [it also signifies] recent submission to a Portuguese monarch, since Lisbon is the head of the empire spread out to all Christianity, as is confirmed by the sign of Cancer beginning to rise in the horoscope. I draw attention to the fact that at first we will also occasionally experience some significations of the twelfth house, and the sentence of the poet is fulfilled: *Mars gravior sub pace latet*; I will explain myself: changes of intent, occult treachery which Saturn in the Ascendant, or first house, signifies.⁷²²

The author also evokes the previous lunar eclipse of the 25th of March connecting it to the betterment of the kingdom at the hands of the prince by means of justice, as signified by the sign of Libra where the eclipse occurred. He places the manifestation of all these effects in the year 1654, when the ending of the effects of the current eclipse and the beginning of those of the next eclipse that will take place in the sign of Leo on the 12th of August. Since Leo, like Aries where the eclipse of 1652 took place, is also a sign of the element fire, he considers that this will signify the end of the effects of the previous three Jupiter-Saturn conjunctions that also happened in signs of Fire (the *Maxima* of 1603 and the following two of 1623 and 1643).⁷²³

(2) The second item judges the sign in which the eclipse took place, Aries. Here he discourses extensively on the effects of eclipses and Jupiter-Saturn conjunctions, and notes the dates of other eclipses in this sign. Quoting *De Eclipsibus* by Proclus (via Giuntini), and Messahallah, he states that the eclipse will have its effects on royal houses and persons since it occurs in Aries and in particular in the second decanate.⁷²⁴

(3) He continues on to the consideration, where he discusses the places where the effect of the eclipse will be mainly felt and lists the lands under of Aries and the other fire signs. Once more he refers the future eclipses of 1654, which will fall as well on a fire sign of Leo and

⁷²² Seia o primeiro sinal do Ceo o tropico de Cancer e no principio da 1ª casa celeste o fim de Geminis, e principio de Cancer que como aquelle extenda seu dominio por Castella e influa mais particularmente na Corte de Paris; e este de Cancer nesta Corte e Cidade de Lisboa significação suas influencias a ruina fatal de Castella, e destruição de Espanha por tantos ia pronosticada e agora na duodecima casa incluida; E de nouo a sogeição que há de ter a hum Monarca Portugues sendo Lisboa cabeça do imperio dilatado por toda a christandade como promete o sinal de Cancer comessando a subir pello horoscopo. Aduirtindo que primeiro havemos tambem de experimentar por uezes alguns significados do 12º domicilio, he a sentença do Poeta uerificada *Mars grauior sub pace latet*; não me explico: mudancas de uontades treições occultas de que no ascendente, ou 1ª casa he sinal Saturno (fol. 3r).

⁷²³ The author is referring to the 1603 conjunction in 8°18' Sagittarius (the *Maxima*), and the ones after, in 1623 and 1643.

⁷²⁴ This interpretation is due to Aries being a royal sign (the others are the remainder fire signs, Leo and Sagittarius) and because the second decanate of Aries (that is the segment between 10° and 20°) is ruled by the Sun, the significator of kings and leaders.

connects them to the cycle of Jupiter-Saturn conjunctions which is also occurring in the fire triplicity. In this note he mentions once more the conjunction of 1603 that occurred in Sagittarius and relates it to Portugal by associating this sign with the chart of 15th of December 1640, when João IV was sworn in as king. At this event the sign of Sagittarius was placed in the tenth house of the chart, that signifies kingship and kingdom.⁷²⁵ Here he is following a similar conjecture to that of Francisco Casmach that connected Sagittarius and the Jupiter-Saturn conjunction of 1603 to the new Portuguese dynasty. He then referred to the turmoil in the parts of Europe ruled by the sign of Sagittarius, which, according to the author, will continue at least until the third minor conjunction.⁷²⁶ This refers to the conjunction of 1663, which took place in Sagittarius as well:

The causes and their effects are reciprocal signs, according to what philosophy teaches us. Thus, the astrologers of old being [also] notable philosophers came to know in which land each celestial sign dominates through their effects in certain cities or provinces that they experienced from each conjunction, and from eclipses, comets, and other celestial phenomenon. Thereby they concluded that Aries chiefly dominates over the kingdoms of England, France, Poland and Palestine, and partly Austria; as for cities, [it dominates over] Cracow, Marseille, Ragusa, Padua, Naples, Florence, Capua, Ferrara, Ancona, and Genoa; and of Spain, Zaragoza, Tortosa, and Valladolid. The [second] sign of the triplicity of Leo, where the eclipse of the Sun will take place in [16]54, at the end of the effects of this [present] one, as we previously said, extends its domain over part of Mecca, and of Turkey, Greece, Bohemia, Sicily and Italy, as well as the kingdom and city of Leon, Palermo, Jerusalem, and in Rome. Finally, Sagittarius, the last sign in the triplicity, and the sign in which occurred the Greatest Conjunction of the year of 1603 on the 14th of December. [It was] also, on the 15th [of December 1640], the day in which His Majesty was sworn in as king by this court, that this very sign occupied the entirety of the 10th house, as can be seen in the figure that I then erected, and the Sun [was] in the eleventh [house], in which [place] has now been eclipsed. This sign of Sagittarius has dominion over all [the parts] of Europe that we now seen in turmoil, and which, we shall see will continue like this until the 3rd Small Conjunction; and it has strength over all of Spain in particular, and specially in our Portugal.⁷²⁷

⁷²⁵ No specific timing is provided but using the Regiomontanus' Rational method of division of the houses in use in this period and in the eclipse figure, this would imply a chart drawn up around 10:30 in the morning. The sign of Sagittarius is on the cusps of both the tenth and the eleventh houses, thus 'this very sign occupied the entirety of the 10th house'.

⁷²⁶ This refers, among other things to the war between Portugal and Spain, as well as the various conflicts taking place in the Iberian Peninsula at this time.

⁷²⁷ As causas e seus efeitos são entre si reciprocos sinais segundo a Philosophia nos ensina; e assi os Astrólogos antigos como insignes philosophos uierão em conhecimento das terras em que mais cada sino celeste dominava pellos effeitos que experimentauão causarem em cada Cidade ou prouincia em todas as conjunções, e eclipses, Cometas, e mais phenomenos do Ceo. Donde vieram a concluir que Aries principalmente dominaua em o Reino de Inglaterra, e França Polonia e Palestina E parte de Austria das Cidades em Cracouia, Marcelha, Ragucia, Patauia, Napoles, Florenca, Capua, Ferrara, Ancona, e Genoua e de Espanha Caragoca, Tortosa e Valladolid. O sino de Leam do seu trigono e em que ha de succeder o eclypse do Sol no fim dos effeitos deste em 54 como ia dissemos estende o seu dominio em Parte de Meca, e de Turquia Graecia Bohemia Cicilia, & Italia tambem no Reyno e Cidade de Leam Palermo Hierusalem, e em Roma. Finalmente Sagittario remate do trigono, e sino em que succedeo a Maxima conjunção no anno de i603 aos 14 de Dezembro. ou aos 15 dia em que sua Magestade foi iurado por Rey nesta Corte occupando o mesmo sino toda a 10^a caza como consta da figura que então levantei E o Sol na undecima em que agora se eclypsou Domina este sino de Sagitario em toda a Europa que toda uimos reuoluida, e mais ainda ueremos ate a 3^a conjunção menor E particularmente tem forca sobre toda Espanha, E mais especialmente em o nosso Portugal (fol. 6r-v).

Throughout the discourse the author associates the astrological prognostications with the prince; however, this is accomplished not by means of astrology, but through prophecy, mentioning among others the texts of the Sybils and the works of Antonio Torcato of Ferrara (15th/16th century)⁷²⁸ and of the aforementioned Manuel Bocarro Francês. Using Bocarro's prophecies the author associates the prince to the myth of the hidden or shrouded one (the *encoberto*); this saviour figure would be the prince himself rather than the long-lost King Sebastian, whose return was several times prophesised. Torcato's text is used to link the prince to a holy enterprise against the Moors and to the spread of the Christian faith to Africa, Turkey and England. All this is strengthened by continuous references to prophecies and texts by Saint Isidore, Saint Methodius, Saint John, Abbot Joachim, and many other authors.

(4) In the fourth part, entitled 'Mars lord of the eclipse', the author discusses the ruling planet for the eclipse. He selects Mars as ruler, by weighing and scoring the dignities and debilities of the planet and concludes that the effects of the eclipse will be martial in nature. As a result, wars, battles, storms and such events of the nature of Mars are to be expected. He also recalls that the effects of the previous lunar eclipse in Libra were of saturnine nature, since the ruler of that eclipse was Saturn. Being a cold planet, Saturn is able to mitigate some of the effects of Mars, at least in what concerns Portugal. He further prognosticates destruction in the naval forces of the Moors and the Turks, as Saturn is in Cancer and in a malefic square aspect to the eclipse. For Portugal, he predicts some troubles for Lisbon as Mercury aspects by square the Cancer ascendant, which represents the city, but not for Porto. The latter is under the sign of Pisces, where the Mid-heaven of the eclipse chart falls, receiving a favourable sextile aspect from Mars, ruler of the eclipse. As Mars is in Taurus, the sign opposite Scorpio, the sign ruling the region of Morocco, he shifts again to prophecy, speaking of the appearance of the Island of the Seven Cities, somewhere on the coast of North Africa.

Up to this point, apart from the mixture with prophecies which, for the most part obscure or sometimes completely overrun the astrological interpretation, the text is quite standard as to the method of astrological prognostication. Yet, the fifth and last part that the author calls 'Venus in the eleventh and Saturn in the first' stands outside what could be considered canonical. The relevance of Saturn placed in the rising sign of the eclipse figure, had already been alluded to in the previous sections. Venus, however, is of secondary importance in this

⁷²⁸ Late fifteenth-century court physician and astrologer at Ferrara, author of a famous prognostic with several printed editions in the sixteenth century, including a Spanish translation: Antonio Torquato, *Pronostico del maestro Antonio Torquato de Ferrara doctor en medicina y astrologo doctissimo de la euerion de Europa, que dirigì al serenissimo Matias rei de Vngria, año de 1480*, trans. Christoval de Cañete (Barcelona: Llorenç Deu, 1623).

chart since it has no direct rulership over the degree of the eclipse or of the rising sign. It can be considered as being the ruler of the sign of Taurus, where Mars, lord of the eclipse is positioned, and in a strong placement in the chart (in the eleventh house of hopes and in the sign of its own rulership), but this is not mentioned in the text and its role in the chart was left it out entirely in all the previous segments. Thus, he begins this last section with a mythological reference to the creation of Venus, relating it to Saturn, since Venus (or Aphrodite) arose from the fallen semen of Uranus when Saturn castrated him. He then reiterates the impact of Saturn in the figure of the eclipse and connects it to the twelfth house through its antiscion which falls in 8° of Gemini, thus bringing to the kingdom vices signified by both the planet and the house. Here his astrological rationale is still within canon, albeit a bit obscure: he connects Saturn to Venus by connecting Saturn's antiscion in the twelfth house to vice. Venus is the natural co-significator of the twelfth house and given the negative qualities of this house it is said to signify vice. All these connections are astrologically valid but seem somewhat artificial and unnecessary for the judgement of the eclipse. However, this odd emphasis on Venus is clarified when he refers to an astronomical observation that he had made three years before, in 1649 in Coimbra when he was still with the Society.⁷²⁹

And let the sins not be the cause for impediment of the clear signs we currently see in the heavens, among which was not of less [importance] what I observed in the year 1649 in Coimbra, when I was still in the Society, and that I sent to Your Highness, warranted by the certificate of the clerics who saw it. As it combines with the effects of this eclipse, I shall repeat here a summary of this for Your Highness, so that it is not necessary for Your Highness to search in your papers, to recall it. And so it was that on the 20th of February, Saturday, the day of Saint Sebastian, while watching some stars with a telescope, larger in effect than in size, at 6 [hours] and a half in the night, I saw that in the star of Venus, which the oculus made almost the size of how we normally see the Moon, could be seen the five *quinas*,⁷³⁰ arms of Portugal, as I reproduce them here. It is true that it was not as round as is presented here, but it was so that the five *quinas* could be seen perfectly. And having first examined the said oculus, and removed the glasses [i.e. lenses], and having observed other stars with it, in none other could be seen this prodigy except in Venus. About 150 clerics were witnesses of this, and still are, many of them professors of Theology and masters of Latin and Philosophy.⁷³¹

⁷²⁹ This passage has the main details on the author's life: he lived or was temporarily in Coimbra and he was a member of the Jesuit Order. It also mentions one of the previous reports to the prince concerning these observations, which is has yet to be found in the Portuguese archives.

⁷³⁰ Portuguese term for the quincunx escutcheons with the silver bezants in the Portuguese arms.

⁷³¹ E não seião peccados causa de se empedirem os effeitos de tam manifestos sinais que uemos estes tempos no Ceo entre os quais não foi menor o que observei no anno de 1649 em Coimbra estando ainda na Companhia; e mandei a Vossa Alteza iustificado por certidão dos Religiosos que o uirão E como tem combinação com os effeitos deste eclipse repetirei aqui por summa o successo a Vossa Alteza pera que não seia necessario tornar Vossa Alteza a reuoluer papeis pera inteligencia deste. E foi que estando aos 20 de Fevereiro em sabbado dia de São Sebastião obseruando algumas estrellas com hum Telioscopio maior ainda no effeito do que era na grandeza as 6 horas e meia fere da noite vi que na estrella de Venus que o oculo fazia quasi do tamanho que ordinariamente uemos a Lua, se descobrião as sinco quinas, e armas de Portugal [Figure of Venus] assi como aqui se representa he bem uerdade que não paressia tam redonda que fizesse perfeito circulo mas de modo que perfeitamente se diuisauão as sinco quinas E sendo primeiro examinado o dito oculo e tirados os uidros e uistas

These observations are most likely cloud formations in the dense atmosphere of Venus, a fact completely unknown at this time. Thus, the author makes sure that it is not a deficiency in the telescope lens, since this type of phenomenon was unique at this date.⁷³² He considers it a ‘prodigy’ and validates his strange observation with the account of several witnesses from the Jesuit college of Coimbra. He gives an account of his other observations of Mars, Jupiter and Saturn, which, despite being quite good from the astronomical point of view, present no novelty for him. The appearance of these planets remained unchanged on the following days, but Venus offered further surprises:

And in these three planets I observed always the same: Jupiter and Saturn on the first, 11th and 14th of March, and Mars on the first, 14th and 15th of said month, only in Venus I always observed changes. And in such a manner that on the 4th of April, which was then Easter, at 9 hours of the night, the constellation of the Pleiades, which we call ‘the Seven Stars’, was at a distance of almost two astronomical rods below the planet, Venus appeared with four spots arranged in the form of a cross and with a smaller piece of another spot, as if it was one of the others that had appeared before. And it might have been that in the 5th they would appear more clearly, but as I broke a glass of the oculus, I could observe no more. I leave out all my other observation of stars, and of the guards [i.e. satellites] of Jupiter.⁷³³



Figure 12.4 – Venus with the five *quínas* (fol.12r)

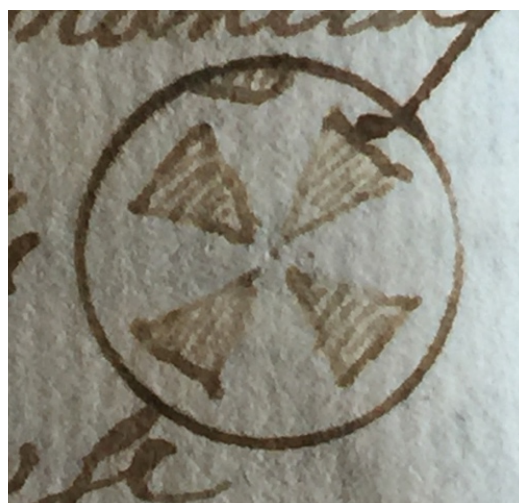


Figure 12.5 – Venus with the cross (fol. 12v)

outras estellas com elle em nenhuã se uiu este portento senão em Venus de que forão e ainda são boas testemunhas perto de 150 Religiosos e delles muitos lentes de Theologia, e mestres de latim e Philosophia (fol. 12r).

⁷³² The relevance of these observations from the astronomical point of view is discussed in Ribeiro and Leitão, ‘Astrology with New Eyes: The Telescope in Astrological Prognostication’, 253–55.

⁷³³ E nestes tres planetas obseruei sempre o mesmo Jupiter e Saturno ao primeiro 11, e 14 de Março, e Marte ao 1º 14, e 15 do mesmo mes, so em Venus fui observando sempre mudanca. E de tal modo que aos 4 de Abril que então foi dia de Paschoa de Resurreição as 9 horas da noite ficando por baxo do dito planeta quasi de duas uaras uisuais a constelacão das Pleades, a que chamamos sete estrello appareceo Venus com quatro manchas dispostas como em Cruz na forma que paresse [figure of a cross on Venus] e com hum pequeno doutra mancha ainda como se fora da outras que antes apparecião. E pode ser que aos 8 de Abril apparecêra melhor, e com mais perfeita distincão mas por me quebrar hum uidro do oculo não fiz mais obseruacão. Deixo todas as mais observacões que tinha feito de estrellas, particulares, e das guardas de Jupiter (fol. 12v).

This transformation of the *quinas* symbol of Portugal into a cross becomes at this point paramount for the author that now brings them into the judgement of the 1652 eclipse. He justifies this through an astrological association between these observations and the eclipse chart. Venus was in Aries at the time of the observation, which is the sign where the eclipse of the Sun occurred. Additionally, the Sun was in Pisces during the observations, and this is the sign associated with the kingdom of Portugal:

And it is important to inform [you] that Venus was then in the sign of Aries in which the eclipse has now occurred, and when the arms were seen in Venus, the Sun was in Pisces, a sign whose domain includes this kingdom, and the Moon and Saturn in Gemini, Jupiter in Libra and Mars in Virgo. Such a configuration is understood to be one of major significance and [it signifies] that your highness' benignity will change in valiant effort, from lamb into lion, in war...⁷³⁴

He interprets most of these phenomena and astrological configurations as a victory of Portugal over the Spanish, with whom Portugal was still fighting a war of independence, or more generally over the Muslim countries. However, Venus is the astrological significator of peace and love, so the author had to make it into a convincing symbol of war. He resorts to non-astrological arguments, namely to the book *Illustrium Virorum Epistolae* (commenting on Plutarch's book on the Lacedemons), the *Divine Institutes* by Lucius Caecilius Firmianus Lactantius (c.250-c.325), and an epigram by Ausonius (c.310 - c.395). Here it is stated that the Lacedemons worshiped and represented Venus in warrior's clothes, thus assuring that Venus can have a signification over war. He then interprets the observations, together with his own interpretations of the prophecies, as representing an upcoming holy war lead by prince Teodósio, the future Portuguese king:

Thus, Venus can as well signify war, or at least induce in the heart of the Portuguese the love of war; and that those arms that in it were observed, given [to us] by Christ, would conquer the World, and convert the glory of your triumphs into the glory of the Cross of Christ, at whose feet humbly kneeling, your highness will carve in the Holy city of Jerusalem. As apparently can be gathered from the aforementioned prognostications and prophecies, and from this prodigious sign of the five *quinas* seen in Venus, and then observed transformed into the shape of a transformed cross.⁷³⁵

⁷³⁴ E so he muito de aduirtir estar então Venus no sino de Aries em que agora sucedeu o eclipse, e o Sol quando se uirão as armas em Venus estaua em Piscis, sino que domina neste Reyno; E a Lua e Saturno em Geminis Jupiter em Libra e Marte em Virgo das quais combinações pairesse se collige Serem combinações em tudo do Principal significado E que a benignidade de Vossa Alteza se ha de trocar em Valeroso esforço; de Cordeiro, em Leão na Guerra ... (fols. 12v-13r).

⁷³⁵ Logo tambem Venus pode significar guerra ou pello menos influir no peito dos Portuguezes amor da guerra; E que essas armas que nella se uirão, e forão dadas por Christo auão de conquistar o Mundo, E conuerter a gloria de seus triumphos em gloria da Cruz de Christo a cujo pe humilmente prostado as graua Vossa Alteza Na Cidade Santa de Hierusalem como pairesse se collige das pronosticações e professias atras referidas. E deste portentoso sinal das cinco qinas que em Venus foram uistas, e depois em forma de Cruz transformadas se obseruarão (fol. 13r-v).

The report concludes with a brief reference to both the lunar and solar eclipses and the author expresses his desire to print the text so that the common people may be informed of the conditions of the heavens, in order to prevent any maleficent influences. This publication, however, did not happen.

This text offers a unique glance into the practice of an educated Jesuit. The discourse reveals him as a cultured man, with access to a good library. He displays a good level of knowledge of the astrological doctrine, as well as astronomical erudition and practice. These are evident in the judgement itself, in the authors cited, the calculations made, and in the expert use of the telescope.⁷³⁶

As to astrology, his discourse is a standard one, being exceptional only in two ways: the first is the dense embedding of prophecy in the text to such an extent that it overshadows his astrological deductions and leads him towards conclusions that are sympathetic to his political and ideological allegiances; the second, and perhaps the most remarkable facet of this text, is the astrological interpretation of a telescope observation, a practice that so far is unique to this author and has not been documented before. This text and the one on the comet of 1681 present this strong melding of astrology with religious and millenarist prophecy, filled with political considerations and forecasting. Yet, as in Gonzaga's judgement about the comet, there is also a strong scientific aspect. It exemplifies very well the combination of scientific accuracy with symbolic interpretation, referred to before, and that appears to be characteristic of the astrological texts of this period.

It is interesting to note the author's desire to publish his prognostication. This is probably due to the fact that at this time he was no longer in the Society and thus not restricted by its rules. Otherwise, such a publication would hardly have been impossible.

⁷³⁶ Among the various astronomical or astrological authors mentioned in the text are David Origanus, Christopher Clavius, Girolamo Cardano, Messahallah, Francesco Giuntini, Bernhard Walther, Hermes, and Christoph Scheiner.

The Calendar of Trnava

There are, however, examples of such astrological publications of Jesuit authorship. One is the case of the Jesuit astrologer and alchemist Johann Misch (1613-1677).⁷³⁷ Born in Luxemburg, he was a teacher at the University of Trnava in Upper Hungary (now Slovakia). He published under the name *Astrophilus Tyrnaviensis* a series of almanacs, a treatise on physiognomy, and a judgement on the comet of 1661. By using a *nom de plume* he was perhaps able to bypass the scrutiny of the Society and publish texts with astrological forecasts. These almanacs were published by Misch between 1657 and 1663.⁷³⁸ They offered the usual planetary positions and aspects, followed by a section with the astrological prognostication for the year, *Prognosis Coniecturalis Astrologica*, on weather, health and agriculture. This was maintained until 1677, by Misch's successor, the Jesuit Martin Szentiványi (1633-1705), when it was replaced by a section on scientific curiosities.⁷³⁹

In the 1661 judgement of a comet, *Prognosis astrologica, ex Martio-Saturnino cometa*, like the authors of the previous texts, Misch makes a technical astronomical overview of the phenomenon which he has also observed using a telescope, the first of its kind documented in Hungary.⁷⁴⁰ Then he adds several astrological considerations on its impact on politics and religion, alluding to many of the conflicts taking place in Europe at that time.⁷⁴¹

Thus, much in the same way as its manuscript counterparts these printed prognostications offer a combination of astronomical and mathematical skills with astrological interpretation. Their scope is perhaps more confined to the sanctioned fields of astrology, since they carry the stamp of a Jesuit university, but the tools and the expertise are the same as those displayed by Gonzaga, Stansel and the anonymous author of the eclipse report.

⁷³⁷ On Misch's activities see Kiss Farkas Gabor, 'Johann Misch Astrophilus Nagyszombatban', *Magyar Könyvszemle*, no. 121 (2005): 140–66; and 'Alchemy and the Jesuits: Communication Patterns between Hungary and Rome in the International Intellectual Community of the Seventeenth Century', in *A Divided Hungary in Europe: Study Tours and Intellectual-Religious Relationships*, ed. Gabor Almasi et al. (Newcastle upon Tyne: Cambridge Scholars Publishing, 2014), 157–82; István Kiss, Mariann Tavaszy, and Gergely Kiss, 'Johann Misch Astrophilus' Book "Medicina Pauperum" in Hungarian. Copy of a Lost or Hidden Book from 1660', *Orvosi Hetilap* 152, no. 27 (2011): 1093–97.

⁷³⁸ Johann Misch, *Calendarium Typographiae Tyrnaviensis Ad Annum 1658. Prognosis Coniecturalis Astrologica Ad Annum 1658* (Trnava: Typis Academicis Melchior Venceslaus Sneckenhaus, 1657). Unfortunately it was not possible to have access to these publications before completion of this dissertation.

⁷³⁹ Henrieta Žažová, 'Budova univerzitného observatória v Trnave', *Acta Universitatis Carolinae. Historia Universitatis Carolinae Pragensis* 57, no. 2 (2017): 30–31; Stanislav Južnič, 'Isusovački stručníjaci u varaždinu', *Radovi Zavoda za znanstveni rad Varaždin*, no. 26 (2015): 137–38.

⁷⁴⁰ Johann Misch, *Prognosis Astrologica, Ex Martio-Saturnino Cometa: Observato Tyrnaviae Anno Currente 1661 a Die 3 Februarij Usque Ad 17. Ejusdem Ab Astrophilo Academico Ibidem, in qua Ex Erecto Coeli Themate Ad Primum Concinnati Phaenomeni Conspectum et Ab Inductione Viginti et Amplius Saeculorum Demonstratur Verum Esse Illud Claudiani: Nunquam Terris Spectatum Impune Cometen* (Trnava: Typis Academicis Melchior Venceslaus Sneckenhaus, 1661).

⁷⁴¹ Kiss, 'Johann Misch Astrophilus Nagyszombatban', 153–55.



Figure 12.6 – Cover of the *Calendarium Typographiae Tyrnaviensis* of 1675

This edition, although not published by Misch, still contained the section on the prognostication of the year.

Nativities

The practice of nativity judgements and their sanctioned version is discussed in the lessons by all the teachers of the *Aula da Esfera*. However, being a highly suspicious practice, it is no surprise to find no evidence of it in any of the previous texts. Even in the more politically centred prognostications there is no reference whatsoever to the astrological charts of the king or the prince. This is to be expected in this type of judgement, even if made in a tactful manner. An example of such a practice is the reference that Guilherme Casmak makes to the nativity of King João IV in his almanac (discussed in Chapter 9).

Privately, this position was apparently different, and an excellent example of this is Gonzaga's brief study of the nativity of one of his pupils, Prince Manuel of Bragança, son of King Pedro II.⁷⁴² As mentioned above, the nativity is used as an example of the construction of the celestial figure (BA, Ms. 46-VIII-22, fols. 75r-76v). In the text Gonzaga presents an overview of the various house divisions mentioning the methods according to Campanus and Regiomontanus, as well as the use by the 'moderns' of the division according to the hours (i.e. the hour line method, later known as the Placidus division). Using the prince's date and time of birth (3 August 1697, at 6 a.m.) he exemplifies the notation of the cusp degree of each house and lists the planetary positions (although without presenting the diagram of the chart). From his calculations it becomes clear that he followed the method of Regiomontanus.⁷⁴³

The exercise goes beyond the simple calculation of the chart. Gonzaga offers some considerations regarding its judgement, exemplifying a practice that was quite common and expected in this period, but so far only hinted in Jesuit texts:

In the collation of these signs and planets, the heaven shows us the well-gathered hopes that we can have in this prince. For if it was licit for us to tell them, under that conjecturable certainty that on this matter is possible, we could make a large catalogue of his happiness. Because it is not licit to us, neither due to time, nor by profession, we will state briefly the more notable ones, leaving the other judgements for the curious.

⁷⁴² For a biography of the prince, see Ernesto Soares, *O Infante D. Manuel 1697-1766: subsídios para a sua biografia* (Lisboa: [Bertrand (Irmaos) Lda], 1937).

⁷⁴³ Gonzaga's listings of the house cusps and of the position of the Moon present several inconsistencies that mismatch with parts of his judgement. Some errors can be explained by the mix-up of astrological glyphs, e.g. he states that the Moon is at 20° Gemini, but it is in fact in Aquarius; this seems to be corrected in the judgement. Others, such as the inconsistency in the house cusps, seem to be a misreading or copying of a table; the cusp values are correct but they are appointed wrongly to the following house, e.g. the cusp of the 11th house is listed as being 28° of Cancer, which is the value for the 12th house. This leads to the erroneous placement of some planets in the houses, while others are interpreted correctly. The origin of this confusion appears to be the manner in which the birth hour is noted. Gonzaga states: 'being the happy nativity of your most serene highness on the 3rd of August, at the 7th hour of the morning of the year 1697' ('Digo que sendo o feliz nascimento da Serenissima Alteza aos 3 dias de Agosto hora 7.^a da manhã no ano 1697', fol. 75r) this translates as a birth time of 6 a.m., since this is the beginning of the 7th hour; this time is consistent with the calculations. However, at one point he notes 7 a.m. (19 p.m. of 2 August 1697 in astronomical notation), changing to 6 a.m. in the following line (18 p.m. of 2 August 1697).

In the first place it can clearly be seen that there can only be many: the prosperities good fortunes? when the Sun is ascending and is also lord of the figure, as is in this case due to the many dignities it enjoys for being in the first house which, in the present figure, is also its domicile; where it enjoys a great part of its exaltation, acquired in Aries, being simultaneously in a masculine sign. All these dignities grant it the lordship over the figure, according to the best authorities. And, having the Sun in the [signification of] people, princes and noblemen, conferring greatness of spirit, love of honours, distinguished and generous actions, it is clear that in this prince, whose nativity it rules, it [i.e. the Sun] will offer most plentifully [these attributes]. This is confirmed in the opinion of the astrologers, on when the Sun is the lord of the ascendant, by these words: [in Latin:] *if the Sun is the lord of the ascendant, the native will be rich in lands and quick to tell the truth, and he will have a clear knowledge of important things and he will be of a good and great name.*⁷⁴⁴ The astrologers further state that every time the Sun is in its own domicile [i.e. sign] and this [domicile] is [on] an angle, and the birth is diurnal, the native will be much loved, [in Latin:] *commanding, wealthy, big and strong, and he will have many riches*; and because in this nativity the Sun has all these conditions with great benefit, it can be inferred that the native will have these good fortunes with great advantage. [side note:] What is in the notebook regarding the Sun in the first house can be added. Nothing lesser is promised by Saturn because it is in its own house, where it means friendships with nobles and magnates, and promises many riches. Because Jupiter is in the house of Venus, it promises him, dealing with princes and joyous spirit. Because Mars is in the house of the Moon, it promises him a subtle ingenuity and desire to reach great knowledge. Because Mercury is in the house of the Moon, it promises many friends, good will, good fame and wisdom. And the same Saturn, [being] a malevolent planet, promises diminishing in sickness, which arise because its bad influence diminishes the Moon, placed in its [i.e. Saturn's] house. This we could gather from the aspects and places of the planets if it was licit for us [to do so]; but it suffices to know that the heavens give use great reasons in which to establish strong hopes [for this prince]. [End note:] It can be added what is [stated] in notebook 3 of Jupiter in the second house; it can be added what is [stated] in notebook 4 of Venus in the tenth house.⁷⁴⁵

⁷⁴⁴ The source of this citation appears to be *De iudiciis nativitatum libri tres*, Johannes Schöner, *Opera Mathematica Ioannis Schöneri Carolostadii: In unum volumen congesta, et publicae utilitati studiosorum omnium, ac celebri famae norici nominis dicata* (Nuremberg: Montanus & Neuber, 1551), fol. 154v. It also appears in Francesco Giuntini's *Speculum astrologiae* (1581), p. 863. (I thank Juan Acevedo for calling my attention to this.) The other interpretations also appear to a paraphrase of Schöner's text.

⁷⁴⁵ Na collecção destes signos, e planetas nos mostra o Ceo as bem juntadas esperanças, que podemos ter neste Principe; pois se nos fosse licito dizellas debaxo daquella conjecturavel certeza, que so nesta materia se permite poderíamos fazer um largo cathalogo de suas felicidades; mas como nos não he licito nem pello tempo, nem pella profissam so diremos as mais notaveis brevemente deixando os outros juizos para os curiosos. Em primeiro lugar bem se deixa ver não podem deixar de ser muitas as felicidades aonde o Sol he o horoscopo, e ainda senhor da figura, como he na presente pollas muitas dignidades de que goza por estar na primeira casa, e ser esta na prezente figura a sua propria; aonde goza de grande parte da sua exaltação, adquirida em Aries, estando juntamente em signo masculino, dignidades todas que lhe concedem segundo a melhor opinião o senhorio da figura, e se o Sol nas pessoas tem a sua conta os principes, e nobrezas influindolhe grandeza de animo, amor de honras, e briozas, e generosas accoes; claro esta que neste principe, de cujo o nascimento se fez senhor se mostrara muito mais liberal. Confirma isto o commum sentir dos Astrologos quando o Sol he o senhor do horoscopo por estas palavras *si Sol fuerit dominus horoscopi, natus erit locuples, velociter dicens vera, et habebit claram scienciam magnarum rerum, eritque boni et magni nominis*. Dizem mais os Astrologos que todas as vezes que o Sol estiver na sua casa, e esta for ângulo e o nascimento diurno, será o nascido muito amado, *regnans dives, magnus, et fortis, et habebit plurimas diuitias*, e como no presente nascimento tenha o Sol todas estas condições com vantagem, bem se pode inferir tera o nascido com vantagem estas felicidades. (Side note: pode acrescentar o que está no caderno quando o Sol está na 1ª Casa.) Nada menos lhe promete Saturno por se achar na sua Casa, aonde influe amizade com nobres, e magnates e promete muita fazenda. Jupiter por se achar na Casa de Venus lhe promete trato com principes, e alegria de animo. Marte por se achar na casa da Lua lhe promete sutileza de engenho, e desejo de alcançar sciencias grandes. Mercurio por se achar na Casa da Lua lhe promete muitos amigos, boa vontade, boa fama, e sabedoria. E ainda o mesmo Saturno planeta malevolo promete diminuição nos achaques que influe por lhe diminuir a Lua em cuja Casa esta, a sua ma influencia. Isto poderíamos colligir dos aspectos e lugares dos planetas se nos fosse licito; mas basta saber nos da o Ceo grande fundamento para

Although simple this judgement of a nativity is evidence of what was strongly implied in the nativities sections of the Jesuit teaching texts, the astrological judgements of birth charts. This type of interpretation was supposed to include almost exclusively considerations on the medical conditions of the native, but in this case the emphasis is clearly on inclinations; only a single remark is made on the topic of health. Yet, Gonzaga remains faithful to the licit applications of astrology, only making general conjectures and stating at the beginning and end of the texts that he will only engage in that which it is licit for him to do. This implies that he is very well aware of all the potential of astrological judgement but respects the strictures of the Church. Yet, Gonzaga's earlier fellow Jesuits, such as João Delgado – if his words are taken literally – would have certainly considered this judgement of the prince to have crossed the line into superstitious astrology. As discussed before, Gonzaga has a different posture than his earlier colleagues, being more tolerant on the judgement of life tendencies.

An additional feature of the texts is the notes directing the reader – most certainly the prince – to the notebooks containing the corresponding astrological doctrine. The judgement is used as a teachings tool and reveals that in Portugal, at least until the early decades of the eighteenth century, astrology was still a part of the princes' curriculum.

Other applications

All these texts contain examples of judgements belonging to the division of astrology called revolutions, which deals with weather and political affairs. This was undoubtedly one of the most common uses for astrology in this period, but would the Jesuit practice of astrology extend to other applications?

Medicine is certainly a strong possibility since it was one of the sanctioned applications of astrology. Although Jesuits were not usually involved with medical teaching or practice, the topic is discussed both in the lessons of Santo Antônio and in those by Borri. There are also testimonies that Valentin Stansel was involved in the practice of medicine in Brazil. Although there is no direct evidence that he used astrology in this practice, his commentaries in the *Uranophilus* on medical astrological canons and their accommodation to Brazil are a strong argument that he did.

fundarmos huas firmes esperanças etc. [End note:] pode acrescentar o que diz o Caderno 3 de ♀ in 2 dom. pode acrescentar o que esta no Caderno 4 de ♀ in 10 dom. (BA MS 46-VIII-22, fol. 76r-v).

Elections are another possible application of astrology by Jesuits. These appear in a limited fashion in the writings of Hugh Sempill but are absent in the surviving teachings of Santo Antão. Still, given that many of the teachers of the *Aula da Esfera* were also architects, the idea that they might have applied astrology to the founding of buildings, a common practise in this time, is rather tempting.

The ceremony of the founding of the Noviciate of Monte Olivete could be an example of such a practice. Also known as the Noviciate of Cotovia, this building, which today houses the National Museum of Natural History and Science, was the Society's house for the education of novices in Lisbon.⁷⁴⁶ The Novitiate was founded under the patronage of Fernão Teles de Meneses, viceroy of India (1530-1605) and his wife, D. Maria de Noronha (c.1545-1623), who in 1589 agreed to the donation of the land and money. The laying of the first stone took place some years later on 23 April 1603. An account of the event conveys the strong ritualistic nature of the ceremony.⁷⁴⁷ In a cavity of the stone were placed medals of Mary, Saint Peter, Saint Paul, Ignatius of Loyola and Francis Xavier, as well as silver and gold coins. The stone was girdled with flowers and blessed, and then lowered to the sound of shawms, while the founder and the provincial held silk strings attached to it.⁷⁴⁸

The care taken in the laying of the first stone could have also had an astrological facet, which again is not an uncommon practice.⁷⁴⁹

The time for the ceremony is known: it took place at 9 a.m. An astrological figure erected for this precise moment would have the beneficial planet Venus culminating in the sign of its exaltation, a very favourable position for such an enterprise. The Moon, ruler of the ascending sign, Cancer, would be placed in the fourth house, associated with buildings and foundations. Neither Venus or the Moon would be harmed by aspects from the malefics Mars and Saturn, and the positions of Venus, the Ascendant degree, and the cusp of the fourth house would be fortified by good aspects of Jupiter. The favourable configuration of these two planets at the moment of the ceremony is strongly suggestive of an astrological election of the event.

⁷⁴⁶ For a comprehensive history of this building see Francisca Branco Veiga, 'Noviciado Da Cotovia (1619-1759) e o Seu Fundador Fernão Teles de Meneses', *Brotéria* 172, no. 1 (2011): 329–42.

⁷⁴⁷ This type of ritual is quite common in this period. For various perspective on this topic see M. Delbeke and M. Schraven, eds., *Foundation, Dedication and Consecration in Early Modern Europe* (Leiden; Boston: Brill, 2011); in particular Berthold Hub, 'Founding an Ideal City in Filarete's *Libro Architetonico* (c. 1460)', in *Foundation, Dedication and Consecration in Early Modern Europe*, ed. M. Delbeke and M. Schraven (Leiden; Boston: Brill, 2011), 26–29.

⁷⁴⁸ Rodrigues, *História da Companhia de Jesus na Assistência de Portugal*, 1938, II–1:209–11.

⁷⁴⁹ See Mary Quinlan-McGrath, 'The Foundation Horoscope(s) for St. Peter's Basilica, Rome, 1506: Choosing a Time, Changing the Storia', *Isis* 92, no. 4 (2001): 716–41; and Hub, 'Founding an Ideal City in Filarete's *Libro Architetonico* (c. 1460)', 23–25.

Considering that until 1607 the construction was overseen by João Delgado, the possibility of the use of astrology becomes even more enticing.⁷⁵⁰

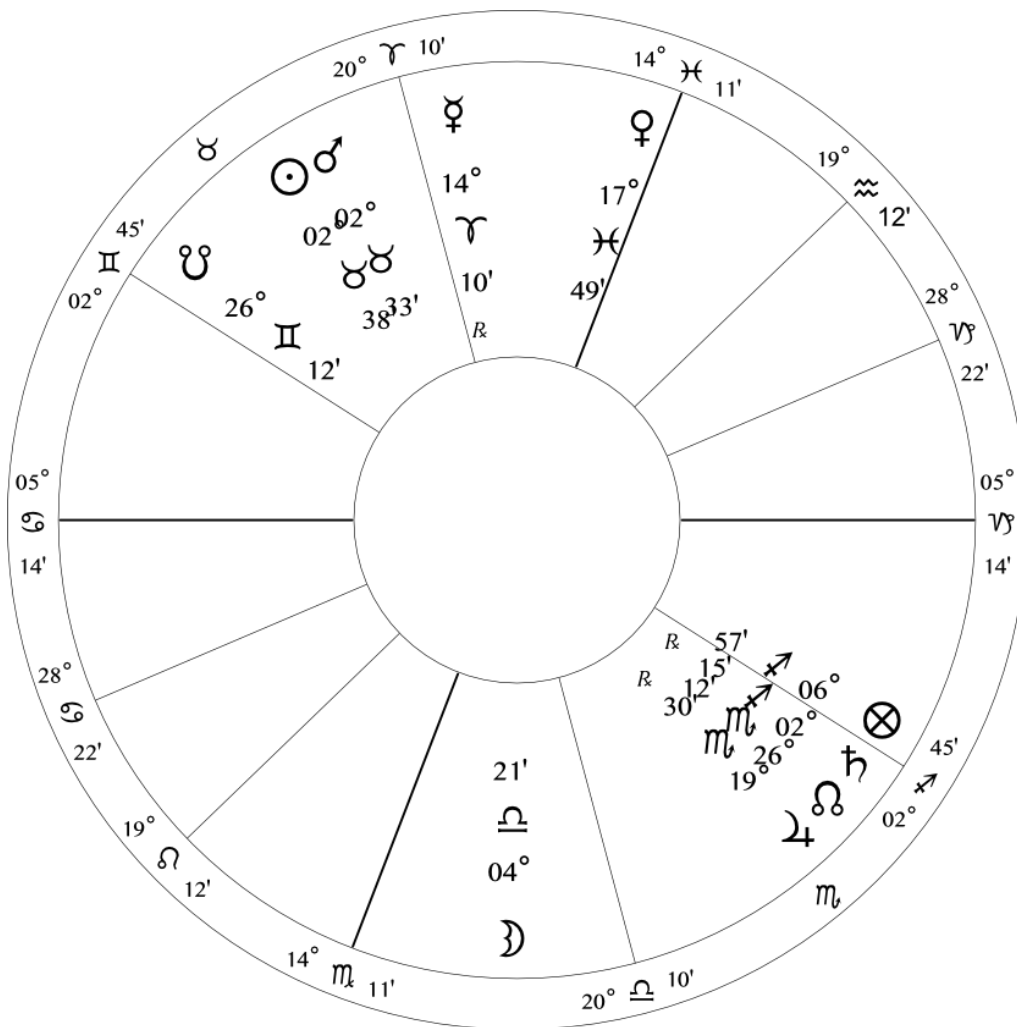


Figure 12.7 – Figure for the laying of the foundation stone for the Noviciate of Cotovia

⁷⁵⁰ Antonio Franco, *Imagem da virtude em o noviciado da Companhia de Jesus na corte de Lisboa, em que se contem a fundaçam da caza, e os Religiosos de virtude, que em Lisboa foram Noviços* (Coimbra: Real Collegio das Artes da Companhia de Jesus, 1717), 11.

The practice in perspective

The sample of astrological judgements by Jesuit authors presented here reveals a diverse practice, perhaps more diverse than the one displayed in their teachings. These include elements, such as political astrology, that are not present in the materials of the *Aula da Esfera*, despite being common practices of the time. They are accomplished by the interpretation of comets, eclipses, conjunctions and political events (e.g. the coronation of João IV). Some like the Judgement of the comet of 1681 and the solar eclipse of 1652 contain a combination of astrological prediction with religious prophecy, offering a new perspective on the uses of astrology by some Jesuit members. Others, like Gonzaga's cometary judgement, or those of Stansel and Kino, provide a more standard and acceptable approach, in tune with the kind of weather and world condition forecasting, taught at Santo Antônio. In this category are most likely included the forecasts made by Verbiest in China.

Because of their problematic nature, explicitly nativity judgments appear only in a single example. Still, this judgement uncovers a practice that was certainly present but in a much more discreet form. Adding the fluid manner in which the judgement of Prince Teodósio was inserted into his biography by a Jesuit author, it is likely that this practice was more extensive than can be inferred by current evidence.⁷⁵¹ This does not mean that these instances of nativity judgements would be made outside the regulatory strictures. Although Gonzaga's example goes a little beyond the harder lines of other Jesuit authors, focusing on inclinations and life tendencies, rather than just temperamental or medical matters, by no means it portrays an illicit practice. It is also a very simple judgement offering none of the complex delineations involved in the interpretation of nativities. It also does not include the more intricate forecasting tools of directions, progressions and revolutions explained in the classes of Santo Antônio. These and other instructions contained in the lessons strongly suggest an active practice of nativity judgements, going beyond their sanctioned application to the realm of medicine.⁷⁵²

This research did not find any examples of medical astrology despite its teaching and discussion by Jesuit authors. It is possible that these would only exist in personal notes that did not reach us.⁷⁵³ The other practice, that only appears hinted in some choices of foundational

⁷⁵¹ Luís, *Theodosius Lusitanus, sive Principis perfecti vera effigies*, fol. 128v.

⁷⁵² This is seen in many instances of the teaching of astrology. Another Iberian example is discussed in Tayra Lanuza Navarro, 'L'astrologia En La Vida Quotidiana En Una Ciutat de l'edat Moderna. Entre La Universitat i Les Creences Populars', *Afers*, no. 82 (2015): 14.

⁷⁵³ For example the notebooks of English physician Simon Forman studied by Lauren Kassell, *Medicine and Magic in Elizabethan London: Simon Forman: Astrologer, Alchemist, and Physician* (Oxford: Oxford University Press, 2005).

dates, is that of elections. These are mentioned in some of the teachings, but it was not possible to find hard evidence of their application. However, in the same manner as medicine, these would only exist in personal notes or accounts of the events. Thus, the lack of some of these practices can be explained by their ephemeral nature. Examples of medical judgements and elections usually survive in two instances: 1) as case studies in books of astrological doctrine, which the Jesuits did not produce; 2) in personal notes that in the case of Jesuits, either have been lost or have yet to be discovered.

Given their commitment to science and to the technical knowledge of their time, and their evident knowledge of astrology, it would be very strange for astrological practices to be completely absent in the case of the Jesuits. These few examples demonstrate that they were not just dealing with astrology from a merely academic point of view. They were applying it in prognostications, from private notes and manuscripts that circulated in the court, to printed almanacs and comet prognostications. Although this was widely suggested by their printed and manuscripts texts, these examples provide concrete testimonies of the practical application of their own teachings, such as the case of the teachers of Santo Antão, which was shared by other members of the Order, even in contexts outside Portugal. As with the teaching, additional research will certainly provide further examples of Jesuit practice of astrology.



FINAL THOUGHTS

This study has attempted to understand how it was possible for lessons on judicial astrology to form part of the teaching in mathematics of the foremost scientific educational institution of early modern Portugal, the *Aula da Esfera* of the College of Santo Antão. Given the strictures imposed by the Church on the practice of astrology, it was hypothesized that such teaching was surely a transgression – an activity done privately and completely outside the usual curriculum. The search for answers led to a study of the role of astrology in Jesuitical culture, a nearly non-existent topic within current historiography.

As discussed in Part I, until the early decades of the eighteenth century astrology was an accepted and widespread practice with many different facets and applied on many levels, from the academic and erudite to the simple and popular. It was a body of knowledge that explained many aspects of nature and the relationship between earthly existence and the starry heavens above. It described the functioning of the World with its cycles of generation and decay. Due to its use as predictive knowledge, some elements of this practice were subjected to heavy criticism, both by the Church and by some members of academia. Yet, this was never a significant obstacle to its practice. Popularized by the printing press, astrology continued being an important discipline, even under the more stringent restrictions laid out in the Index and the papal bull in the second half of the sixteenth century. Astrology permeated the entire early modern European culture and was practiced universally, reaching all social classes, from the court advisors and physicians, to the popular realms of the almanacs and the market place. Therefore, astrology was as much a part of the cultural environment and the mindset of the Jesuits as Christianity itself. Consequently, the Society and its members reflected this in their relationship with astrology.

The Jesuits were a very heterogeneous group, and this diversity is also present in their opinion of astrology: an entire spectrum, from forthright adherence to utter rejection, as was explored in Part II. The Society's institutional stand on astrology and its practice was, obviously, in line with the Church's precepts. Its official position was one of condemnation against its illicit and superstitious applications. An extreme stance on this moral position was displayed in the Jesuit anti-astrological works. However, these are the views of specific individuals and the entire gamut of opinions is better perceived in (1) the Jesuit theological

discussions, which set the limits under which astrology could be used lawfully, and (2) their philosophical debates, which outlined the extent to which astrology was considered to work. Grounded on Thomistic thought, astrology was, for the most part, accepted as long as it respected the principle of free will, its conclusions were based on natural causes, and its conjectures considered only as possibilities due to the ultimately unknowable nature of future and contingent events – again, mirroring the position of the Church. Therefore, within these boundaries, the study of astrology was perfectly lawful for a Jesuit.

The leading cause for the misunderstanding of the relationship of Jesuits with astrology, rests on the use of the term ‘judicial astrology’. This has limited the perception of historians on the very possibility of astrological practice by members of the Jesuit order. Differently from the theologians, who associated it with illicit practices of astrology, Jesuit mathematicians used the term in another sense, which was much more faithful to its original meaning. Judicial astrology was the practical facet of astronomical knowledge that made judgements on the changing planetary configurations based on licit natural correlations. Thus, in the mind of a Jesuit studying or teaching mathematics, it was not strange to use or learn from texts on judicial astrology. It was therefore in the realm of Jesuit mathematical sciences that astrology consolidated into a practice.

More than other members of the Society, Jesuit mathematicians had a closer contact with astrology, and it is not strange to find among them the most manifest indications of its study, teachings, and practice. This is evidenced in their printed books where they reveal themselves as well versed in astrology, even when not in favour of its practice. With a few exceptions, they place astrology among the practical sciences, as the applied facet of astronomy. However, given the ill-regarded position that astrology had in the eyes of the Church, they never develop the topic fully in printed form.

The practical approach to astrology only materializes in their manuscript corpus because this medium is much less prone to censorship. In it Jesuit ideas on astrology, its teaching, and application come to light. From various manuscript texts studied in this research emerges a relationship and use of astrology not unlike that of many other scholars of this period. Even the manuscript texts of Christopher Clavius, the foremost Jesuit supporter of the study of mathematics, show the acceptance of astrology and the knowledge of its practices, which are absent from his printed works.

Considering this body of evidence, the classes of Santo Antônio become less and less of an apparent transgression, and more a unique corpus of texts where the Jesuit’s views on astrology

come to light more evidently than elsewhere, due to the particular circumstances of the college. As seen in Part III, in these manuscripts, astrology is just another element on the canvas of useful technical knowledge provided by the college. It is well integrated into a larger programme of mathematics as part of the cosmographical syllabus and appearing as the natural result of the astronomical teachings. The authors offer several arguments to validate its study, a tailored syllabus conforming to the religious and scientific principles upheld by the Society, and also some rare and significant examples of astrological practice. The latter reveal astrology to be another tool used by some Jesuits to advise kings and princes in the same manner as a court astrologer would.

However, neither the teaching nor the practice of astrology by Jesuits is exclusive to the Portuguese context. It was taught by Cristoforo Borri in Milan and Hugh Sempill in Madrid; it was practiced by Valentin Stansel in Brazil and by Johann Misch in Hungary; Johann Adam Schall von Bell and his colleagues used it and disseminated it in the Far East. This makes it an international practice and an overall facet of Jesuit scientific culture.

Beyond establishing the connection of Jesuit scholars with astrology, the texts studied also show how they handled the challenges of both Catholic regulations and the fast-growing demand for scientific correctness. Thus, the Jesuit approach to astrology attempted to reconcile astrological doctrine with the restraints imposed by the Church by turning it into a scientific, mathematical, and functional knowledge, honouring it as part of science, and at the same time making it a lawful Christian practice. In sum, they accommodate astrology as scientifically precise and also morally correct. This implied the reformulation of some of the core concepts less justifiable through natural philosophy, such as the signification of houses, or the removal of those considered as outright superstitions, such as the lots and some of the minor dignities.

In this light, it becomes clear that the inclusion of astrology in the public curriculum of the *Aula da Esfera* was not at all made in defiance of the Church. There was no obscure promotion of illicit and forbidden practices; on the contrary, as both leading scholars of their epoch and deeply religious men, they took possession of astrology as a time-honoured knowledge and practice which they accepted wholeheartedly as a true science. From their point of view this rebuilding of astrology was a worthy enterprise that followed Jesuit and Catholic Christian principles. From the results of their efforts, some distinguishing elements can be extrapolated to characterize Jesuit astrology:

- 1) a large emphasis on the mathematical principles and calculations;
- 2) an astrological doctrine always explained by accepted philosophical and scientific principles; and most importantly
- 3) a practice morally acceptable for a Christian in all its aspects.

To this can be added another element, appearing only in some forms of prognostication, which is the strong infusion of religious imagery and prophecy into the astrological judgement.

This proved to be a challenging task and many of these restructuring efforts were not completely uniform even in the writings of the same author. Since many of the ‘irrational’ elements of astrology were key components for its functioning, this renovation emphasized internal contradictions or created holes within the astrological corpus. This was largely due to the fact that these revisions did not emerge as much from within astrological practice but were mainly imposed by outside forces: either coming from religion or natural philosophy. This revision appears to have remained a work in progress that was gradually abandoned with the increasing marginalization of astrology in academic settings.

Further research is needed to understand the exact magnitude of the Jesuit contribution to this type of revision of astrology catering to both religion and science. To advance and consolidate some of the results of this research more documentation is needed. Texts on the teaching and practice of astrology must be procured in the surviving archives of Jesuit colleges, as well as in personal documents and letters – something that was not possible to explore in this first approach to the topic of Jesuits and astrology. The astrological curricula of other teaching institutions, both secular and religious, also need to be studied to see if the same type reformation was taking place. Indeed, the changes to astrological doctrine in the early modern period are still to be mapped out in a comprehensive manner, to allow a wider range of comparisons to be made and lines of transmission identified.

Yet, given the various pieces of evidence presented here, it can be concluded that in a period when astrology went through many changes, several Jesuit scholars integrated it as another part of their comprehensive mathematical knowledge. As with many other forms of knowledge, they developed it, as much as possible, into a scientifically adequate tool. And although the Jesuits were not the originators of the revision process, or of the ‘naturalization’ of astrology, they wholeheartedly accepted it, endorsed it, and took it as their own. Despite its questionable status, they affirmed its lawful practice and were severe critics of its bad

practitioners. They were active agents in the propagation of this posture towards astrological knowledge and, given the worldwide reach of their teaching institutions, their impact in the reconstruction and dissemination of astrological knowledge might be more significant than ever realized. Further research is necessary to fully understand all the implications of the use of astrology by Jesuits, but, through this present research it becomes evident that astrology must take its place among the many scientific projects and experimentations that defined Jesuit technical and scientific culture in the early modern period.



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APPENDIX I – BULL COELI ET TERRAE

**CONSTITUTIO S.D.N.D. SIXTI PAPAE QUINTI
CONTRA EXERCENTES ARTEM ASTROLOGIAE
IUDICIARIAE ET ALIA QUAECUMQUE DIUINATIONUM
GENERA, LIBROSQUE DE EIS LEGENTES, AC TENENTES.**

*Sixtus Episcopus seruus seruorum Dei, ad perpetuam rei
memoriam.*

[1] Coeli & terrae creator Deus, quem unum omnipotentem corde credimus ad iustitiam, & ore confitentes ad salutem, etsi homini, quae ad imaginem & similitudinem suam creauit, mentem dederit, quae non solum diuino fidei lumine illustrata mysteria illa cognosceret quae humanam intelligentiam superant, sed etiam naturae suae ui, magno licet cum labore, praeclara multa inuestigaret atque intelligeret; tamen ut superbum animal homo non altum saperet, sed timeret, & immensam conditoris sui maiestatem humi stratus ueneretur, sibi soli eorum quae euentura sunt scientiam & futurarum rerum cognitionem reseruauit. Solus enim ipse, cuius oculis omnia nuda & aperta sunt, & ad intimas hominum cogitationes penetrat, & consequentes eorum actiones intuetur, solus ipse, qui vocat ea quae non sunt tamquam ea quae sunt, omnia praesentia & ante oculos posita habet; solus denique omnia & singula quaecumque totius temporis decursu, & saeculorum aetatibus futura sunt, ab omni aeternitate nouit, & admirabili prouidentia disposuit, quae non modo humanae mentis imbecillitas ignorat, sed nec daemones ipsi praesentire possunt.

[2] Quare idolorum in futuris annuntiandis falsitatem & imbecillitatem, qui eis cultum adhibebant, vanitatem irridet Spiritus Sanctus apud Isaiam illis verbis: Annuntiate quae ventura sunt in futurum, & sciemus quia Dij estis vos. Et in nouo Testamento Christus Dominus discipulorum suorum de futuris euentis paulo cupidius inquiringentium interrogationem graui illa responsione retudit, quae etiam omnium fidelium suorum curiositatem coërcuit: Non est vestrum scire tempora & momenta quae Pater posuit in sua potestate. Nec verò ad futuros euentus & fortuitos casus praenoscendos (futuris euentibus ex naturalibus causis necessariò vel frequenter prouenientibus, quae ad diuinationem non pertinent, dumtaxat exceptis) ullae sunt verae artes aut disciplinae, sed fallaces & vanae, improborum hominum astutià &

**THE CONSTITUTION OF OUR MOST HOLY LORD, THE LORD
POPE SIXTUS THE FIFTH, AGAINST THOSE PRACTICING THE
ART OF JUDICIAL ASTROLOGY AND EVERY OTHER KIND OF
DIVINATION, AND AGAINST THOSE READING AND POSSESSING
BOOKS ON THESE SUBJECTS.**

*Bishop Sixtus, servant of the servants of God, for perpetual
remembrance of this matter*

[1] Although God, creator of heaven and earth, in Whom, Omnipotent, we trust in our heart for justice and confess with our voice for salvation, gave man, whom He created in His image and likeness, a mind – which, not only, when enlightened with the divine light of faith, could know those mysteries that exceed human intelligence, but also in the strength of its nature (although with great effort) could scrutinize and understand many marvellous things – nevertheless, so that man, a proud animal, should not be too haughty, but should be fearful, and, prostrated on the ground, should venerate the immense majesty of his creator, He kept for Himself the science of the future and the knowledge of things that are to come; because only He, to Whose eyes all things are bared and evident, both penetrates the most intimate thoughts of Man and observes their consequent actions. Only He, who names those things which do not exist, as much as those that do, has all things present and in front of His eyes. Finally, only He has known since all eternity all and every single thing that is to come, in the course and flow of all time and in all ages and centuries, and has ordered them with admirable providence – those things that, not only the feebleness of human understanding is ignorant of, but even the demons cannot foresee.

[2] For this reason, the Holy Spirit scoffs at the falsehood and weakness of idols in announcing future things, and the vanity of those who worshipped them, in Isaiah, with these words: “Announce the things that are to come and we shall know you to be gods” (Isaiah 41, v. 23). And Christ our Lord in the New Testament rejected with that serious reply the question of his disciples who were inquiring about things to come a little too eagerly. With the same answer He also curbed the curiosity of all His faithful: “It is not for you to know the times or moments, which my Father placed under His own power” (Acts, 1, v.7). For there are no true arts or teachings for knowing future happenings and fortuitous events (except only those which arise necessarily or frequently, from natural

daemonum fraudibus introductae: ex quorum operatione, consilio vel auxilio omnis diuinatione dimanant; siue quòd expressè ad futura manifestanda inuocentur, siue quòd ipsi prauitate suâ & odio in genus humanum, occultè etiam praeter hominis intentionem, se ingerant & intrudent vanis inquisitionibus futurorum, ut mentes hominum perniciosas vanitatibus & fallaci contingentium praenuntiatione implicentur, & omni impietatis genere deprauentur. Quae quidem ipsis cògnita sunt non diuinate aliquà, nec verà futurarum rerum scientiâ, sed naturae subtilioris acumine, & aliis quibusdam modis, quos hominum obtusior intelligentia ignorat.

[3] Quamobrem dubitandum non est, in huiusmodi fortuitorum contingentia & futurorum euentuum inquisitione & praecognitione diaboli operationem se fallaciter immiscere, ut suâ fraude & dolis miseros homines à viâ salutis auertat, & laqueo damnationis inuoluat. Quae cùm ita sint, nonnulli haec fideliter & religiosè ut debent non attendentes, sed curiosa sectantes, grauiter Deum offendunt, errantes ipsi, & alios in errorem mittentes.

[4] Tales inprimis sunt Astrologi, olim Mathematici, Genethliaci & Planetarij vocati, qui vanam falsamque siderum & astrorum scientiam profitentes, diuinaeque dispositionis ordinationem, suo tempore reuelandam, praeuenerint audacissimè satagentes, hominum natiuitates seu genituras ex moto siderum & astrorum curso metiuntur, ac indicant futura, siue etiam praesentia, & praeterita occulta, atque ex puerorum ortu & natali die, siue quavis aliâ temporum & momentorum vanissima obseruatione & notatione, de uniuscuiusque hominis statu, conditione, vita cursu, honoribus, diuitiis, sobole, salute, morte, itineribus, certaminibus, inimicitiis, carceribus, cadibus, variis discriminibus, aliisque prosperis & aduersis casibus & euentibus praecognoscere, iudicare, & affirmare temerè praesumunt, non sine magno periculo erroris & infidelitatis, cùm sanctus Augustinus, praecipuum Ecclesiae lumen, eum qui haec obseruat, qui attendit, qui credit, qui in domum recipit, qui interrogat, Christianam fidem & Baptismum praeuaricasse affirmet; ut illos meritò Apostulus arguat atque increpet illis verbis: Dies obseruatis, & menses, & tempora, & annos, timeo vos, ne fortè sine causa laborauerim in vobis.

[5] Hi igitur leuissimi & temerarij homines, in miserandam animarum suarum ruinam, graue fidelium scandalum, & Christiana fidei detrimentum, futurum rerum euentus, & quaecumque prosperè vel aduersè euentus, & quaecumque prosperè vel aduersè euentura sunt, ac actus humanus, ea denique quae ex liberâ hominum voluntate proficiscuntur, astris sideribusque adscribunt, eisque eam facultatem, vim, seruitutem &

causes that do not belong to divination), but they are deceptive and vain, introduced by the cunning of evil men and the deceptions of demons, from whose activity, counsel or aid, all divination emanates, whether because they are expressly invoked and called to manifest future things, or because they themselves, by their evil and hatred of humankind, occultly interfere and intrude, without the intent of Man, into the vain scrutiny of future things, so that the minds of men are involved in pernicious vanities and deceitful prediction of contingent things, and are sullied by all kinds of impiety. These things, in reality and in truth, are obtained and are known to them, not by any divination nor by true knowledge of things to come, but, due to the acuteness of their most subtle nature and by certain other means that are unknown to the duller understanding of men.

[3] For this reason, it should be without doubt that, in the contingency of fortuitous things of this kind and the divination and foreknowledge of these future events, the operation of the Devil is deceitfully mixed up, so that with his deception and wiles he can lead astray miserable men from the path of salvation and involve them in the bonds of damnation. In this situation, some of them, not paying attention to this as faithfully and religiously as they should, and chasing after curiosities, offend God gravely, by erring in themselves and making others err.

[4] Such people, above all, are the Astrologers, once called *Mathematici*, *Genethliaci* and *Planetarij*, who – professing the vain and false science of the stars and constellations, and with incredible daring, seek to predict the order of the divine disposition, that in its due time shall be revealed – measure the natiuities and conceptions of men by the movements and courses of the stars and constellations, and judge future things, as well as hidden things of present and past times; and through the nativity of children and their day of birth, or by any other consideration and the most vane observations and recordings of times and moments, presume recklessly to foretell, judge and pronounce about the status, condition, course of life, honours, wealth, progeny, health, death, travels, disputes, enmities, prisons, casualties and various changes and other prosperous and adverse cases and events, not without great danger of error and infidelity. For Saint Augustine, the principal luminary of the Church, states that he who follows these things, attends to them, believes in them, receives them into his house or asks for them, has violated his Christian faith and baptism. And these the Apostle rightly convicts and reprehends with those words: “You pay attention to the days and months, times and years; I fear that I might have worked in vain among you” (Galatians 4, vv. 10-11)

[5] These men, so frivolous and reckless, for the miserable ruin of their souls, the grave scandal of the faithful and the detriment of the Christian Faith, attribute to the stars and

efficaciam tribuunt futura significandi, & ad praecognita ita inclinandi, ut sic omnino nec aliter euentura sint atque, ob eam causam, de iis rebus omnibus iudicia facere, prognostica, praedictiones, & praecognitiones sibi assumere, & palam venditare non dubitant; quibus non pauci rudes, & imperiti, alique nimis creduli & imprudentes tantam fidem praestant, ut ex huiusmodi iudiciorum & praedictionum praescripto aliquid certò esse credant, aut sperent: quorum sanè & mendacium magistrorum seueritas, & infelicium discipulorum credulitas magnoperè deploranda est, qui vel diuinis Litteris admoniti, non intelligunt hominis praestantiam, cui caeli & stella, & clarissima caeli sidera, Sol & Luna, Deo ita disponente, non imperant, sed inseruiunt.

[6] Sic enim Moyses populum Dei, ut hunc errorem caueret, praemonebat: Ne fortè eleuatis oculis ad caelum, videas Solem & Lunam, & omnia astra caeli, & errore deceptus, adores ea, & colas, quae creauit Dominus Deus tuus in ministerium cunctis gentibus quae sub caelo sunt. Sed quid sidera mirandum est homini seruire? nónne nobilissimae interlligentiae, Angeli ipsi, omnes sunt administratorij spiritus, in ministerium missi propter eos qui hereditatem capiunt salutis? Nam rationales oues ita diligit Deus, ut non solum Episcopos, quemadmodum à S. Ambrosio scriptum est, ad tuendum gregem ordinauerit, sed etiam Angelos destinauerit.

[7] Praeclarè etiam Sanctus Hieronymus: Magna dignitas animarum, ut unaquaeque habeat ab ortu natiuitatis in custodiam sui Angelum delegatum. Quòd si Angeli homines custodiunt, quid aduersus Angelorum custodiam & tutelam astra moliri aut efficere poterunt, quae cum ipsis Angelis nullo modo sunt comparanda? Nec sanè hoc loco praetereunda est eximij Ecclesiae Doctoris & beatissimi Pontificis Magni Gregorij sententia, qui Priscillianistas haereticos, unumquemque hominem sub constitutione stellarum nasci putantes, magno rerum & verborum pondere confutat. Absit, inquit, à fidelium cordibus, ut aliquid esse fatum dicant, uitam quippe hominum solus hanc Conditor, qui creauit, administrat: neque enim propter stellas homo, et si stella fatum hominis esse dicitur; ipsis suis ministeriis subesse homo perhibetur. Vtinam insani homines haec saperent, & intelligerent, & Dei monitis obtemperarent in Leuitico dicentis, Non declinetis ad Magos, nec ab Ariolis aliquid sciscitemini, ut polluamini per eos: neque enim quae Christiana & vera pietas repellit ac damnat tanto studio inuestigarent, iisdemque miserè se decipi atque irretiri paterentur.

[8] Sunt etiam inanes quidam homines & curiosi, vel impij & irreligiosi, qui futurarum & occultarum aliarum rerum notitiam adeò anxie habere student, ut, ob eadem

planets the future occurrence of things and everything that prosperously or adversely will come to pass, and human achievements, and finally those things that come from the free will of man; and to them they attribute the ability, strength, service and effectiveness to signify future things and, so favouring the foretelling of things, that (they believe) all things will arise in no other way – for this reason, they do not hesitate to make judgments on all these things, in assuming for themselves prognostics. predictions and divinations, and in openly offering them for sale; in whom many rustics and ignorant people, and others who are too credulous and imprudent, put so much faith that they believe or hope that something will arise for certain, as a result of the prescription of judgements and predictions of this kind. And very lamentable, on the one hand, is the recklessness of those lying masters, and on the other the credulity of the unhappy and unfortunate pupils, who, even when cautioned by divine scripture, do not grasp the excellence of Man, whom the heavens and stars – not even the brightest luminaries of heaven, the Sun and the Moon (as God so determined) – do not command, but serve.

[6] And thus Moses warned the people of God to flee and avoid this error, by saying: “Let it not be that you, raising your eyes to the heavens, see the Sun and the Moon and all the stars of heaven and, deceived by error, come to worship and honour that which was created by your Lord God for the service of all people that live and abide under the skies” (Deut. 4, v. 19). But why is it a wonder that the skies serve Man? Are not the most noble intelligences, the angels themselves, all created spirits, sent to administer, in the service of those who receive the inheritance of salvation? For God loves so much the rational sheep that not only did He give them bishops, as Saint Ambrose writes, for the defence of the flock, but also He destined angels for the same office.

[7] Also, Saint Jerome beautifully states: “Great is the dignity of the souls, for each is assigned at birth an angel to protect him” (Comm. in Matthew, xviii, lib. ii). Thus, if the angels protect Man, what can the stars scheme or effect against this protection and guardianship, which can in no way be compared with the angels themselves? And certainly, here the words of the great doctor and holy pontifex Gregory Magnus must not be passed over, who with deeds and words of great weight, persuaded the Priscillianist heretics who believed that each Man was born under the constellation of the stars, saying: “Let it be absent for the hearts of the faithful to say that fate is something, since only He who created this life of Man, administers it; for Man was not made for the stars, and if the star is said to be the fate of Man, Man is said to be subjected to his own servants” (*Homilia in Evangelia*, 1, 10). If only those foolish Men could be wise about these things, have understanding and obey the warnings of God, Who in Leviticus states: “Do not approach magicians, nor ask

praenoscenda & inuestiganda, in diuinae Legis offensionem multipliciter incurrant. Alij enim Geomantiae, alij Hydromantiae, Aëromantiae, Pyromantiae, Onomantiae, Chiromantiae, Necromantiae, aliisque sortilegiis & superstitionibus, non sine daemonum saltem occultâ societate, aut tacitâ pactione, operam dare, seu aleis ac sortibus illicitis taxillorum, granorum triticorum vel fabarum iactu uti non verentur. Alij verò, aliquas pristinae & antiquatae, ac per Crucis victoriam prostratae idololatriae reliquias retinentes, quibusdam auguriis, auspiciis, similibusve signis & vanis obseruationibus, ad futurorum diuinationem, intendunt.

[9] Alij item sunt, qui cum morte foedus ineunt, & pactum faciunt cum inferno, qui similiter, ad occultorum diuinationem, ad inueniendos thesauros, vel ad alia facinora perpetranda, etiam expressâ cum diabolo pactione factâ, in manifestam suarum perniciem animarum, nefarias Magica artis incantationes, instrumenta & veneficia adhibent; circulos & diabolicos characteres describunt, daemones inuocant aut consulunt, ab eis responsa petunt aut aliarum rerum suffimenta, seu fumicationes, aliâue sacrificia offerunt, candelas accendunt; aut rebus sacris, aut Sacramentis vel sacramentalibus sacrilegè abutuntur; adorationis, genuflexionis, aut quaeuis alia impietatis obsequia praestant, cultum venerationémue tribuunt; aut annulum, vel speculum, aut paruas phyalas sibi fabricant, aut fabricari curant, ad daemones in eis alligandos, seu includendos, ut putant, ad responsa ab ipsis inde petenda, aut habenda.

[10] Alij praeterea, etiam in corporibus obsessis, vel lymphaticis, & phanaticis mulieribus, daemones de futuris, vel occultis rebus aut factis exquirunt, ut meritò ab eis, quos Dominus in Euangelio tacere imperauit, vanas mendacésque referant responsiones. Alij quoque praestigiatore, frequentius verò mulierculae quaedam superstitionibus dedita, in phyalis seu vasculis vitreis aquâ plenis, vel in speculo accensis candelis, etiam benedictis sub nomine angeli sancti & albi, diabolum, omnium malorum satorem, supplices adorantes, vel in unguibus aut palmâ manus, quandoque etiam oleo perunctis, eundem omnium fallacium architectorem orant, ut similiter futura, vel occulta quaeuis, per spectra & apparentes imagines seu phantasticas visiones sibi ostendant, aut ab eodem patre mendacij diabolo aliis incantationibus, aut aut vanis superstiosis obseruationibus, futurorum & occultorum huiusmodi veritatem quaerunt, & hominibus praedicere contendunt.

[11] Quorum omnium, quos suprà enumerauimus, consimilis impietas parem exitum habet, nimirum, quòd daemonis praestigiis ac dolis tum qui diuinant, tum qui

questions of soothsayers, for you will be polluted by them” (Lev. 19, v. 31), because then they would not be so diligent in scrutinizing these things, which the Christian, true faith despises and condemns, nor would they consent to be miserably deceived and enmeshed by them.

[8] There are also certain vain and curious men, or those impious and without religion, who so anxiously seek to know future things and other hidden things, that in order to know them in advance and investigate them, commit in many ways grave offences against the Divine Law. For some do not fear to give attention to geomancy, others to hydromancy, aeromancy, pyromancy, onomancy, chiromancy, necromancy, and other divinations and superstitions, not without the occult company of, or tacit pact with demons; or use games of dice, illicit casting of lots with knuckle bones and grains of wheat, or throwing beans. Others, possessing certain relics of the ancient and past idolatry which was prostrated by the victory of the Cross, practice certain divinations and prognostications, and other similar signs and vain considerations, to foretell future things.

[9] Likewise, there are others that enter a covenant with death, and make a pact with Hell, similarly to divine hidden things, to find treasures, or to commit other evil deeds, even making a pact with the Devil for the clear ruin of their souls, use evil incantations of the magical art, instruments and spells; they draw circles and diabolical symbols, invoke or consult with demons, and seek responses from them, and offer them suffumigations of some things, sacrifices of others, light candles, and make evil use of the sacraments or sacramental objects, and present to them the services of adoration, genuflexion, or any other impiety, and give to them worship and veneration, and manufacture or ask to be made for them a ring, or a mirror, or small vessels to bind and imprison (as they think) demons, to seek or get responses from them.

[10] Besides these there are others, who in the bodies possessed (by a demon) and in insane and mad women, ask the demons concerning future and hidden things or deeds, so that it can be said – and rightfully so – that those to whom God commanded silence in the Gospel, give vain and deceitful answers. Other magicians too, mostly certain women, who are given to superstitions – in bowls or vessels filled with water, or in a mirror, having lit candles, which are even blessed with the name of a holy, white angel, in supplication worshipping the Devil, the sower of all evils, or in the nails and palm of the hand, sometimes also smeared with oil – pray to the same architect of all deceptions, to show them and give them knowledge of future or concealed things by means of ghosts and the appearance of images, or fantastic visions, or they ask the same father of lies, the Devil, with other enchantments or vain, superstitious observations, and seek the truth of future

diuinationem expetunt, illusi ac delusi miserrimè reperiuntur. Itaque cùm futuros euentus in se ipsis considerare, antequam fiant, sit Dei proprium, illud necessariò consequitur, ut Astrologi, & alij praedicti, qui huiusmodi futura praenuntiare aut praenoscere quocumque modo, nisi Deo reuelante, audent, iniustè atque impudenter quod Dei est sibi assumant, & usurpent. Sic fit, ut dum ab eis, quod solius est creatoris, perperàm creaturis tribuitur, diuina Maiestas grauiter laedatur, fidei integritas violentur, & animabus pretioso Christi Sanguine redemptis pestis atque exitium importetur.

[12] Et licet iampridem regulis Indicis librorum prohibitorum, ex Decreto sacri Generalis Tridentini Concilij confecti, illud inter cetera constitutum fuerit, ut Episcopi diligenter prouiderent, ne huiusmodi Astrologiae iudiciariae Libri, Tractatus, & Indices legerentur vel haberentur, qui de futuris contingentibus, successibus, fortuitisve casibus, aut iis actionibus, quae ab humanâ voluntate dependent, certò aliquid euenturum affirmare audent, permissis tamen iudiciis & naturalibus obseruationibus, quae nauigationis, agriculturae, siue medicae artis iuuandi gratiâ conscripta fuissent; libros verò omnes & scripta Geomantiae, Hydromantiae, Chiromantiae, Necromantiae, siue in quibus continentur sortilegia, veneficia, auguria, auspicia, incantationes artis Magicae, prorsus reiici & aboleri curarent: non tamen errorum, corruptelarum, delictorum, & abusuum praedictorum extirpationi usque adeò prouisum est, quin etiam adhuc in nonnullis locis, & apud plurimos curiosius vigeant, cùm valdè frequenter, sortilegiorum & variarum superstitionum omnia plena esse indies detegantur.

[13] Nos igitur, qui pro nostro Pastoralis officij munere fidei integritatem inuiolatam conseruare debemus, & animarum saluti prospicere, quantum diuinâ gratiâ adiutrice possumus, ex paternae charitatis visceribus optamus, damnantes & reprobantes omne genus diuinationum, quae, diabolo auctore, ad fidelium deceptionem à praedictis curiosis vel perditis hominibus fieri solent. Cupientes praeterea sanctam illam Cristianae Religionis simplicitatem, praesertim de summâ Dei creatoris potestate, sapientiâ & prouidentiâ ab omni erroris labe integram atque incorruptam, ut par est, retineri. Volentes quoque praedictae falsae credulitati, ac huiusmodi illicitarum diuinationum & superstitionum detestabili studio, atque execrandis flâgitis atque impuritatibus occurrere, ut de Christiano populo meritò, quod de populo Dei scriptum est, Non est augurium in Iacob, neque diuinatione in Israël, hac perpetuò ualitura constitutione, Apostolicâ auctoritate statuimus, atque mandamus, ut tam contra Astrologos, Mathematicos, & alios quoscumque, dictae Astrologiae iudiciariae artem, praeter quàm circa agriculturam, nauigationem, & rem

and hidden things of this kind, and strive to foretell this to men.

[11] Of all those abovementioned, a similar impiety has a similar end, namely, that both those who make divinations, as well as those who request them, will be most miserably mocked and tricked by the deceptions and wiles of the Devil. Thus, as the consideration of future events in themselves before they come to be, pertains to God, it follows necessarily that the astrologers, and the other aforementioned people, who dare to predict future events of this kind or to know them in advance in some way or other (in any way other than by divine revelation), unjustly and impudently assume and usurp for themselves what belongs to God. Thus it happens that, as they mistakenly attribute to the creatures that which pertains to God alone, they gravely offend His Divine Majesty, and corrupt the integrity of the Faith, and bring pestilence and death upon the souls redeemed by the precious blood of Christ.

[12] It has long since been established by the rules of the Index of forbidden books, according to the decree of the Holy Ecumenical Council held at Trent, that bishops should diligently watch out that such books of judicial astrology, treatises and indices that dare to state with certainty that future contingents, successes, or chance events, or those acts which depend upon human will, should not be read, nor owned (except for those which are written with the purpose of assisting navigation, agriculture and the art of medicine), and they should seek that all books and writings on geomancy, hydromancy, chiromancy and necromancy, or others that contain sortileges, spells, auguries, omens and magical charms, should be entirely thrown away and cast into oblivion. Yet all this is not enough to provide for the extirpation of the errors, corruptions, crimes and abuses that even now in many places and among many people, curiously gain strength – for very frequently everything is revealed progressively as being full of sortileges and various superstitions.

[13] We, therefore, who, in accordance with the duty of our pastoral office, must preserve the integrity of the faith inviolate, and who wish, with the innermost paternal love, to tend to the salvation of souls, as much as we are able, with the help of divine grace, condemning and reproving every kind of divination, that with the hand of the Devil, the aforementioned curious or lost men are accustomed to perform in order to deceive the faithful – moreover, desiring that the Holy simplicity of the Christian Religion, particularly regarding the supreme power of God, the creator, and His wisdom and providence, be preserved whole and free of corruption from any blemish of error, as is rightful; wanting furthermore to obviate the aforementioned false credulity and accursed study of those illicit divinations and superstitions, and the abominable evilness and filth, so that the Christian people may say with propriety what is written about the ancient people of

Medicam, in posterum exercentes, aut facientes iudicia, & natiuitates hominum, quibus de futuris contingentibus, successibus fortuitisque casibus, aut actionibus ex humanâ voluntate pendentibus aliquid euenturum affirmare audent, etiamsi id se non certò affirmare asserant, aut protestentur, quàm contra alios utriusque sexus, qui supradictas damnatas, vanas, fallaces & perniciosas diuinandi artes siue scientias exercent, profitentur, & docent, aut discunt, quive huiusmodi illicitas diuinationes, sortilegia, superstitiones, ueneficia, incantationes, ac praemissa detestanda scelera, & delicta, ut praefertur, faciunt, aut se in eis quomodolibet intromittunt, cuiuscumque dignitatis, gradus & conditionis existant, tam Episcopi & Praelati Superiores, ac alij Ordinarij locorum, quàm Inquisitores haereticae prauitatis, ubique gentium deputati, etiamsi in plerisque ex his casibus antea non procedebant, aut procedere non valebant, diligentius inquirant, & procedant, atque in eos seuerius Canonice poenis, & aliis eorum arbitrio animaduertant. Prohibentes omnes & singulos Libros, Opera & Tractatus huius iudiciariae Astrologiae, Geomantiae, Hydromantiae, Aëromantiae, Pyromantiae, Onomantiae, Choromantiae, Necromantiae, artis Magicae, aut in quibus sortilegia, ueneficia, auguria, auspicia, execrabiles incantationes ac superstitiones continentur, ac ut suprà in memorato Indice interdictos, sub censuris & poenis in eo contentis, à quibuscumque Christi fidelibus legi, aut quomodolibet retineri, sed illos Episcopis & Ordinariis locorum, vel Inquisitoribus praedictis praesentari & consignari debere. Et nihilominus eadem auctoritate statuimus & mandamus, ut contra scienter legentes aut retinentes Libros & scripta huiusmodi, seu in quibus talia continentur, similiter iidem Inquisitores liberè & licitè procedant, ac procedere, & poenis condignis punire & coercere possint; non obstantibus constitutionibus & ordinationibus Apostolicis, ceterisque contrariis quibuscumque. Vt autem praesentes nostrae litterae ad communem omnium notitiam facilius deducantur, iubemus illas in valuis Basilicarum sancti Ioannis Lateranensis, & Principis Apostolorum de Vrbe, ac in acie Campi Florae affigi, seu appendi, eisque detractis, ipsarum exempla etiam impressa eisdem in locis affixa relinqui.

[14] Et insuper uniuersis & singulis Venerabilibus Fratribus nostris Patriarchis, Primatibus, Archiepiscopis, Episcopis, locorum Ordinariis & Praelatis, necnon Inquisitoribus haereticae prauitatis ubilibet constitutis, per haec committimus, & in virtute sanctae obedientiae districtè praecipiendo mandamus, ut per se, vel alium, seu alios, easdem praesentes litteras, postquam eas receperint, seu earum notitiam habuerint, in suis & singulis parochialibus Ecclesiis, dum in eis populi multitudo ad diuina conuenerit; deinde verò semel in anno, & quoties

God: “There is no omen in Jacob, nor divination in Israel” (Nu. 22, v. 23) – by this constitution that shall be forever valid, we establish and command by virtue of our apostolic authority that against the Astrologers, *Mathematici*, and any others who from now on practice the aforementioned art (except in regard to agriculture, navigation or medicine), or cast judgments and nativities of men in which they dare to state something will happen regarding future occurrences, successes and chance happenings, or acts dependent upon human will – even if they say or protest that such a thing is not stated as a certainty – as well as against man and women that practice or profess, teach or learn, the aforesaid damned, vain, deceitful and pernicious arts or sciences of divination, or who perform illicit divination of this kind, sortileges, superstitions, spells, charms and the aforesaid abominable evils and offenses (as is said before), or that enter into them in any way, regardless of their dignity, status or condition – as much bishops, superior prelates, and other diocesan bishops, as inquisitors of heretical depravity everywhere – even though in many cases before they did not, or could not act, must more diligently inquire and proceed, and take more severe action, in accordance with canonical rule and other [rules] of their own devising, forbidding all and sundry books, works and treatises of the aforementioned judicial astrology, geomancy, hydromancy, aeromancy, pyromancy, onomancy, chiromancy, necromancy, of the magical art, or those containing sortileges, spells, divinations, omens, damnable enchantments and superstitions, as in the aforementioned Index are forbidden, with the censorship in them contained, that cannot be read or in any way owned, or be in the possession of any of the faithful of Jesus Christ, but they must be presented and assigned to the bishops and diocesan bishops, or to the aforementioned inquisitors. Therefore, by the same authority, we establish and command that against those that knowingly, read or keep books and writings of this kind, or those that contain the aforementioned things, similarly the inquisitors should freely and licitly proceed, and can proceed and punish and restrain them with the penalties they deserve, regardless of the Apostolic Constitutions and Ordinations, or any other things that are against it. And in order that our present writings may more easily be brought to the common attention of all, we order them to be affixed or placed on the doors of the Basilicas of St. John Lateran, and of St Peter in the City (St Peter’s Basilica in Vatican City) and in the Piazza Campo de’ Fiori, and when the originals are removed, may printed copies of them remain affixed in the same places.

[14] Most of all, to all and any of our venerable brother patriarchs, primates, archbishops, bishops, diocesan bishops, and prelates, and also to the inquisitors of heretical depravity, wherever they reside, we commit by the present [decrees] and we order by virtue of holy obedience, that strictly and precisely, either by themselves or by third parties, as soon as

eis expedire videbitur, vulgari sermone publicent, aut publicari faciant.

[15] Quia verò difficile foret praesentes litteras ad singula quaeque loca, in quibus de eis fides facienda erat, deferri; Volumus, ut earum transumptis, etiam impressis, manu Notarij publici subscriptis, ac paruo sigillo sanctae Romanae & uniuersalis Inquisitionis, aut alicuius Praelati, vel Curiae Ecclesiasticae munitis, eadem prorsus fides in iudicio & extra ubique locorum adhibeatur, quae iisdem originalibus litteris adhiberetur, si essent exhibitae, vel ostensae.

[16] Nulli ergo hominum omnino liceat hanc paginam nostrum statutorum, mandatorum, prohibitionis, iussionis, commissionis, & voluntatis infringere, vel ei ausu temerario contraire. Si quis autem hoc attentare praesumpserit, indignationem Omnipotentis Dei, ac beatorum Petri & Pauli Apostolorum eius se noverit incursurum.

[17] Datum Romae apud sanctum Petrum, anno incarnationis Dominicae 1586. Nonis Ianuarij, Pontificatus nostri anno primo.

they receive these words, or have notice of them in their parish churches, when the multitude of the people is gathered in them for the divine office – but thereafter once a year and every time it seems convenient to you – to make them known or have them made known in the vernacular language.

[15] But because it would be difficult to bring the present words to all places in which trust must be placed in them, we want and it is our will that their copies – even when printed, should be signed by a public notary and sealed with the small seal of the Holy Roman and Universal Inquisition, or of some Prelate or Ecclesiastical court, and the same faith in the judgement and beyond it, should be given to them as to the original words, if they were exhibited or presented.

[16] In conclusion, and finally, to no man at all will it be licit to break or contradict with bold daring this letter of our statutes, precepts, commandments, prohibitions, commissions, and will. And if someone presumes to attempt this, he will know that he will incur the wrath of the Almighty God and of His blessed apostles Peter and Paul.

[17] Given in Rome, on the Feast of Saint Peter, the year of the Incarnation of our Lord, of 1586, the nones (5th) of January, in the first year of our Pontificate.

I would like to thank Professor Charles Burnett for his most valuable help in the translation of this document that allowed this text to be put integrally into English for the first time.

APPENDIX II – TEACHERS OF THE *AULA DA ESFERA*

A. Teachers of the *Aula da Esfera*

This list is based on the research by Ugo Baldini. It is the most comprehensive list so far, but there are still several gaps on the current knowledge of the teachers of the *Aula da Esfera*.

Teacher	Period as teacher	
João Delgado	1590 – 1591	
	1591 – 1593	Substitute: Francisco da Costa
	1594 – 1595	Substitute: Francisco da Costa (?)
	1595 – 1596	Assistant: Francisco da Costa
	1596 – 1597	
Antônio Leitão	1597 – 1598	
João Delgado	1598 – 1599	Substitute: Francisco da Costa
Christoph Grienberger	1599 – 1602	
Francisco da Costa	1602 – 1604	
Francisco Machado	1604 – 1605	
João Delgado	1605 – 1608	
Sebastião Dias	1610 – 1611	Substitute (?)
	1611 – 1615	
Giovanni Paolo Lembo	1615 – 1617	
Dionísio Lopes	1617 – 1619	
Johann Chrysostomus Gall	1620 – 1627	
Cristoforo Borri	1627 – 1628	(perhaps 1629)
Ignace Stafford	1630 – 1636	
Simon Fallon	1638 – 1640	(perhaps 1641)
Jan Ciermans	1641 – 1642	
Hendrick Uwens	1642 – 1645	(perhaps 1646)
Thomas Barton	1648 – 1649	
John Rishton	1651 – 1652	
João da Costa	1654 – 1655	
Bartolomeu Duarte	1655 – 1658	
Valentin Stansel	1658 – 1663	
John Marques	1664 – 1665	
George Gelarte	1668 – 1686	
Franz Xavier Schildenhofen	1686 – 1687	1689 – 1690
George Gelarte	1692 – 1693	1695 – 1700
Luís Gonzaga	1700 – 1706	
João Garção	1706 – 1707	
Inácio Vieira	1708 – 1712	
João Garção	1712 – 1713	
Inácio Vieira	1715 – 1719	
Manuel de Campos	1719 – 1721	
Diogo Soares	1721 – 1722	
Domingos Pinheiro	1724 – 1725	
Jacinto da Costa	1725 – 1731	
Manuel de Campos	1733 – 1742	
Francisco Gião	1742 – 1743	
João de Borja	1743 – 1748	
Tomás de Campos	1748 – 1751	
Eusébio da Veiga	1753 – 1759	

B. Teachers with astrological writings or connections to astrology

Teacher	Short biographical data	<i>Aula da Esfera</i>	Astrological mss (or related materials)
João Delgado (1553-1612)	Portugal (Lagos) S.J. 1574 Rome: theology and mathematics (1576-1585) Teaches in Coimbra (1586-1589)	1590-1593 1595-1597 1598-1599 1605-1608	BNE Mss/8931 (1607) BNP Cod. 2130 (1607) BNP Cod. 6353 (1607)
Francisco da Costa (1567-1604)	Portugal (Pinhel) S.J. 1583 Studies Greek (Coimbra 1586-1587) and Philosophy (Lisbon, 1588-1590)	1591-1592 1595-1596 1602-1604	BL Egerton Ms. 2063 (1602)
Sebastião Dias (c.1581-1617)	Portugal (Lisboa) S.J. 1591 Studies theology and philosophy in Coimbra (1604-1610)	1610-1614	BL Egerton Ms. 2063 (c. 1613)
Cristoforo Borri (1583-1632)	Italy (Milano) S.J. 1601 Teaches in Mondovi (c.1607-1610) Teaches in Milano (1611-1614) Mission in Cochinchina (1617-1622) Teaches in Coimbra (1626-1627)	1627-1628	BNCR Ms. Fondo Gesuitico 587 BAM Ms. A. 83 Sussidio
Simon Fallon (1604- 1642)	Ireland (Gaura) S.J. 1619 Studies in Coimbra and Évora Teaches in Bragança (1627) Teaches in Coimbra (1630-1632)	1638-1641	ANTT M.L 2642 (1639) BNP A.T./L. .9 (1640) BNP Cod. 2127 (1628) BNP Cod. 4246 (1640) BNP Cod. 4331 (1640) BNP Cod. 5161 (1640)
Jan Ciermans (1604-1648)	's-Hertogenbosch (Netherlands) S.J. 1619 Studies and teaches in Louvain (until 1641) Chief engineer of Portugal (1642)	1641-1642	<i>Tutor of Prince Theodosio</i>
Valentin Stansel (1621-1705)	Olmütz, Praga S.J. 1637 Studies in Olmütz Rome Teaches in Évora (1657-1658) Baía, Brasil (1663 - 1705)	1658-1663	<i>Uranophilus</i> (1685) BNP PBA 484 (c.1689)
Luís Gonzaga (1666-1747)	Portugal (Lisbon) S.J. 1683 Studies in Évora: philosophy (1686-1690) and mathematics (1692-1694) Teaches in Coimbra (1695-1699) Preceptor of the princes (1705-1713) Rector of Santo Antão (1713-1747)	1700-1705	ANTT M.L. 2132 BA 46-VIII-22 Others of interest: BPMP Ms. 769

S.J = date of entrance in the Society

APPENDIX III – JESUIT ASTROLOGICAL MANUSCRIPTS

A. Tables of contents of the Aula da Esfera astrological manuscripts and other manuscripts of interest

João Delgado

BNE MSS/8931 (fols. 130-225v)

**Compendio Judiciario, ou Astrologia practica dictada pello Padre João Delgado no
Colegio de S. Antão o nouo. Começou a 8 de Janeiro de 607.**

This text is part of a miscellany containing works on navigation, military architecture, music, and astronomy:

Compendio del arte de navegar (Compendium on the art of navigation) by Rodrigo Çamorano – fols. 9r-73v

Tratado de la música (Treatise on music) by Bartolome Jobernardi – fols. 84r-129v

Compendio judiciario ou Astrologia práctica (Compendium on judicial astrology or Practical astrology) by João Delgado – fols. 130r-225v

Arquitectura de fortificação (Fortification architecture) – fols. 226r-256r

Tratado de la luna con un nuevo modo de hallar las lunaciones con echar dos dados (Treatise on the Moon with a new method of finding lunations...) by Delio Rossi – fols. 262r-294v

For the following listing the preserved individual foliation of the text was used instead of that of the codex.

Astrologia prática

[Proemio] – fol. 2

Tratado 1º. Dos prencípios da astrologia pratica – fol. 2v

1ª duvida. Se he possivel saberse algua cousa natural e scientificamente por astrologia – fol. 2v

2ª duvida. Se he licito saber da astrologia – fol. 4

Cap. 1º. Da deusão do Zodiaco – fol. 7

Cap. 2º. Da natureza dos planetas – fol. 7v

Cap. 3º. Dos Signos Celestes – fol. 12v

Cap. 4º. Da Simpatia ou Conformidade e natureza *que* os planetas tem com os Signos – fol. 15

Cap. 5º. Das dignidades accidentais dos planetas – fol. 19v

Pergunta acerca dos aspeitos – fol. 21v

Cap. 6º. Das Casas Celestes – fol. 23v

Cap. 7º. Dalguns aduertimentos em geral – fol. 26v

Tratado 2º. Dos Juizos dos tempos – fol. 27v

Cap. 1º. Dos Juizos dos eclipses – fol. 27v

Cap. 2º. Das cores das eclipses e outros sinaes que as Ratificação – fol. 36

Digreção dos Cometas – fol. 37

Cap. 3º. Das Regioens e lugares sujeitos as 4 triplicidades, aso 12 Signos do Zodiaco e aos 7 planetas – fol. 39

Cap. 4º. Da natureza e efeitos das estrelas fixas – fol. 41v

Cap. 5º. De como por o *zodiaco* do 8º çeo se ande fazer os verdadeiros juízos – fol. 43v
Cap. 6º. Do prençipio do Anno – fol. 46v

Tratado 3º. Dos nascimentos – fol. 52

Cap. 1º. Da fegura da Conseição e do nacimiento – fol. 53
Cap. 2º. Da forma ou fegura, complexão, estatura, e qualidades corporaes do *que* nasce – fol. 58
Cap. 3º. Do tempo em que *acontecexam* ao naçido algua enfermidade ou perido della – fol. 62

Tratado 4º e ultimo. Pera os juízos da Medicina – fol. 72

[Several additional tables and texts not part of Delgado's text] – fols. 75-96v

BNP Cod. 2130

Astrologia Practica ou Iudiciaria. Dictada pelo Sapientíssimo Padre Mestre João Delgado no Colegio de S. Antão da Companhia de IHS. Anno 1607.

Astrologia prática

Proemio – fol. 1

Tratado 1º. Dos principios da astrologia pratica – fol. 1v

1ª duvida. Se he posiuel saberse alguma cousa natural e sientificamente por Astrologia – fol. 1v
Segunda duvida. Se he licito saber da astrologia – fol. 4v
Cap. 1º. Da deiuição do Zodiaco – fol. 8
Cap. 2º. Da natureza dos planetas – fol. 9
Cap. 3º. Dos *Signos* Celestes – fol. 17
Cap. 4º. Da Simpatia ou Conformidade e natureza *que* os planetas *tem com os Signos*. – fol. 20v
Cap. 5º. Das dignidades accidentais dos Planetas – fol. 27
Cap. 6º. Das Casas Celestes – fol. 32v
Cap. 7º. Dalguns aduertimentos em geral. – fol. 37

Tratado 2º. Dos Juizos dos tempos – fol. 38v

Cap. 1º. Dos Juizos das eclipses – fol. 38v
Cap. 2º. Das cores das eclipses e outros sinais que as Ratificação. – fol. 52v
Digreçam dos Comettas – fol. 54
Cap. 3º. Das Regioens e lugares suieitos has 4 triplicidades, aos 12 *Signos* do Zodiaco e aos 7 Planettas. – fol. 56
Cap. 4º. Da natureza, e effeitos das estrellas fixas. – fol. 60
Cap. 5º. De como por o *zodiaco* do 8º. Ceo se ande fazer os Verdadeiros Juizos – fol. 63
Cap. 6º. Do Principio do anno – fol. 67v

Tratado 3º. Dos nacimentos – fol. 78v

Cap. 1º. Da figura da conseição e do nacimiento – fol. 80v
Cap. 2º. Da forma ou figura, compreisão, estatura, e qualidades corporeas do *que* nasce etc. – fol. 88
Cap. 3º. do tempo em *que* *aconteçera* ao nacido alguma enfermidade ou perigo della. – fol. 95

Tratado 4º e ultimo. Pera os juízos da Medicina – fol. 115v

[Index, incomplete] – fols. 121-126v

BNP Cod. 6353

Astrologia Practica. 1607

Astrologia prática

[Proemio] – fol. 1

Tratado 1º. Dos *principios da Astrologia pratica* – fol. 1v

1ª duvida. Se he possiuel saberse *alguma* cousa natural e sientificamente por Astrologia? – fol. 1v

Segunda duuida. Se he licito saber da astrologia – fol. 3v

Cap. 1º. Da diuisão do Zodiaco – fol. 6

Cap. 2º. Da natureza dos planetas – fol. 7

Cap. 3º. Dos Signos Celestes – fol. 12

Cap. 4º. Da Simpatia ou Conformidade e natureza *que* tem os planetas com os Signos. – fol. 15v

Cap. 5º. Das dignidades accidentais dos Planetas – fol. 20v

Pergunta acerca dos aspectos – fol. 22v

Cap. 6º. Das Casas Celestes – fol. 25

Duvida acerca das cazas Celestes – fol. 27v

Cap. 7º. Dalguns aduertimentos em geral. – fol. 29

Tratado 2º. Dos Juizos dos tempos – fol. 30v

Cap. 1º. Dos Juizos das eclipses – fol. 38v

Cap. 2º. Das cores das eclipses e outros sinais que as Ratificação. – fol. 43v

Digreçam dos Comettas – fol. 44v

Cap. 3º. Das Regiões e lugares subjeitos has 4 triplicidades, aos 12 *Signos* do Zodiaco e aos 7 Planetas. – fol. 47

Cap. 4º. Da natureza, e effeitos das estrellas fixas. – fol. 51

Cap. 5º. De como pollo *Zodiaco* do octauo Ceo seão de fazer os uerdadeiros Juizos – fol. 54

Cap. 6º. Do principio do anno – fol. 58v

Tratado 3º. Dos nascimentos – fol. 67

Cap. 1º. Da figura da concepção e do nascimento – fol. 69v

Cap. 2º. Da forma ou figura, compleição, estatura, e qualidades corporeas do que nasça etc. – fol. 78v

Cap. 3º. do tempo em *que* acontereça ao nacido *alguma* enfermidade ou perigo della. – fol. 86v

Tratado 4º e ultimo. Pera os juízos da Medicina – fol. 109v

[several recipes and personal notes] – fols. 116v-119

[two drawings: sphere with zodiac and zodiacal man] – fols. 119v-120

Sebastião Dias

BL Egerton Ms. 2063

This manuscript is a miscellany of scientific texts, most of which have yet to be identified. The texts appear often out of order and repeated, some are difficult to read due to damage or faded ink. The listing here intends only to provide a general mapping for the texts mentioned in this study. The astrology texts are detailed below.

Da grandeza, longitude e lugar verdadeiro do Cometa (On the magnitude, longitude and true place of the comet) (title) – fol. 1r

Tratado Astrológico dos Cometas (Astrological treatise on the comets) – fols. 2r-17v

[text on music (?)] (begins at the end of chapter 3 until chapter 11) – fols. 18v-24v

Doutrina da estática, origem uso e necessidade (beginning of a text on Statics) – fol. 24v

Astrologia – Tratado 1º. Dos principios da Astrologia (Astrology, first treatise) (1st copy) – fols. 25-39v

[unidentified text] – fol. 40r-v:

Astrology, first treatise (cont.) – fols. 41r-42v

Astrologia – Tratado 1º. Dos principios da Astrologia (Astrology, first treatise) (2nd copy) – fols. 43r-58r

Da Astrologia iudiciaria. Tratado 3.º (Judicial astrology, third treatise) (1st copy) – fols. 58r-64v

Tratado da Geografia (Treatise on geography) – fols. 65r-81r

[text on music (?)] – fols. 81v-88r

Astrologia Iudiciaria. Tratado 3º dos nascimentos (Judicial astrology, third treatise on nativities) (second copy) – fols. 89r-106r

Sessão 6ª. Da Hidrostática e Aerostática (Text on Hydrostatics and Aerostatics – fragment?) – fols. 106v-107v

Os dois livros da fábrica e uso do globo astronómico (On the making and use of the globe), Francisco da Costa, July 1602 – fols. 108r-119r

[unidentified text] (cont.) – fols. 119v-121v

Da Astrologia Iudiciaria. Tratado 3º dos nascimentos (Judicial astrology, third treatise on nativities) (third copy) – fols. 122r-137r

[unidentified text] (cont.) – fols. 137v-139v

Tratado de Hydrografia e arte de navegar (Treatise on hydrography and navigation), 1611 – fols. 140r-142r

[text on numbers (?)] – fols. 142v-143v

Treatise on hydrography and navigation (cont.) – fols. 144r-159r

[text on numbers (?)] – fols. 159v-160v

Treatise on hydrography and navigation (cont.) – fols. 161r-172v

Breve compendio da cosmografia (Brief compendium on cosmography) – fols. 173r-188v

[text on numbers (?)] – fols. 189r-190v

[text on navigation (?)] – fols. 191r-192v

Folio on the nature of the planets – fol. 193r-v

[text on numbers (?)] – fols. 194r-195v

[text on navigation (?)] – fols. 196r-202r

[unidentified text] – fol. 203r-v

[text on navigation (?)] – fols. 204r-205v

[blank] – fol. 206r-v

[text on the compass needle (navigation?)] – fol. 207r-v

[folio on eclipses and habitable regions of the Earth (cosmography?)] – fol. 208r-v

Tratado da esfera (Treatise on the sphere) – fols. 209r-220v

[text on winds (?)] – fols. 221r-229r

[unidentified text] – fol. 229v-234v

Do Uso dos instrumentos Matemáticos (On the use of mathematical instruments), João Delgado, 1592 – fols. 235r-256v

Do uso do quadrante (On the use of the quadrant) – fols. 257v-267v

Do Radio astronomico (On the astronomical radius) – fols. 268-278

Astrological texts:

Da grandeza, longitud e lugar verdadeiro do Cometa. – fols. 1r-17v

Tratado astrológico dos cometas. – fol. 2r

Que coisa seja cometa e como se geram. Título primeiro, – fol. 2r

Do mouimento dos cometas. Título segundo. – fol. 3r

Do tempo e lugar em que se geram. Título terceiro. – fol. 4r

Da variedade que ha de cometas. Título quarto. – fol. 4v

Da diversidade e da vista do cometa. Título quinto. – fol. 5v

Como se saberá a diversidade da vista do cometa no círculo de altura. Tit. 6. – fol. 6r

Como se saberá o lugar verdadeiro do cometa na eclíptica com ajuda de algum instrumento. Título 7º. – fol. 7r

Do lugar apparente ou uiso. Título oitauo. – fol. 7r

Como se saberá a diversidade da uista *que* o cometa tem em sua longitude. Título nono. – fol. 7v

Como se conheçera a latitude apparente do cometa, se alguma houver. Título decimo. – fol. 7v

Como se conheçera a distancia do cometa do centro do mundo e do centro da vista. Título undecimo. – fol. 8r

Como se sabera a grandeza o tamanho do cometa. Título doze. – fol. 9r

Se o cometa tiver cauda, como se sabera seu comprimento e grossura. Título treze. – fol. 9v

Perguntase se os cometas são sinais ou causas de Pestes fomes e guerras. Título quatorze. – fol. 10r

Como se ha de prognosticar pollos cornetas. Título quinze. – fol. 12r

Das significações dos cometas em os 12 signos. Título dezaseis. – fol. 13r

Dos pronosticos dos cometas conforme aos planetas predominantes. Título 17. – fol. 15r

Do Cometa saturnino. Título 18. – fol. 15v

Do Cometa do predomínio de [Júpiter]. Título 19. – fol. 15v

Do Cometa de [Marte]. Título 20. – fol. 16r

Do Cometa Solar. Título 21. – fol. 16r

Do Cometa de Vénus. Título 22. – fol. 16v

Do Cometa Mercurial. Título 23. – fol. 16v

Do Cometa Lunar. Título 24. – fol. 17r

Das exaltações dos Cometas sobre as estrelas erráticas, e suas significações. Título uintecino. – fol. 17r

Astrologia – Tratado 1º. Dos principios da Astrologia. – fol. 25

Cap. 1º. Que cousa seja astrologia, e como se distingue da astronomia. – fol. 25

Cap. 2. Se se pode saber alguma cousa por astrologia. – fol. 25

Cap. 3º. Se he licito levantar figura, e de *que* cousas se pode levantar, e que cousas não. – fol. 25v

Cap. 4. Dos planetas, e em particular de sua natureza. – fol. 26

Se pode acontecer *que* os planetas fortunas seião infortunas a respeito de humas cousas, e as infortunas seião fortunas a respeito de outras. – fol. 27

Cap. 5º. Dos effeitos *que* costumão causar os planetas. – fol. 27v

[Saturno] Saturno. – fol. 27v

[Jupiter] Jupiter. – fol. 28

[Marte] Marte. – fol. 28v

[Sol] Sol. – fol. 28v

[Venus] Venus. – fol. 28v

[Mercurio] Mercurio. – fol. 29

[Lua] Lua – fol. 29

Cap. 6. Das dignidades ou fortunios essenciais dos planetas. – fol. 29

Primeira dignidade essencial [casa] – fol. 29v

2.^a dignidade ou fortunio essencial [exaltacam] – fol. 30v

3.^a dignidade [triplicidade]. – fol. 31

4.^a dignidade [terminus] – fol. 31

5.^a dignidade essencial [face] – fol. 31v

Cap. 7. Das dignidades accidentais dos planetas, ~~com particular da dos aspectos dos planetas~~. – fol. 32v

- 1.^a dignidade accidental que he dos aspeitos – fol. 32v
- 2.^a dignidade accidental [elevacam] – fol. 34v
- 3.^a dignidade accidental [oriental e occidental] – fol. 35
- 4.^a dignidade accidental [diurno/nocturno] – fol. 35v
- 5.^a dignidade accidental [sexo] – fol. 36

[jumps to chapter 11 on folio 37, chapters 8, 9 and 10 appear later]

- Cap. 11. Dos signos imperantes e obedientes, e dos signos rectos e oblíquos, ou antícios. – fol. 37
- Cap. 12. Da natureza e qualidades das estrellas mais importantes que se achão nos 12 signos. E seos effectos. – fol. 38 [incomplete chapter. It only has the stars of Aries]
- Cap. 13. Das outras estellas fixas. – fol. 39
- Cap. 14. Diuisam das cazas celestes. – fol. 39v [incomplete, just one paragraph]

[fols. 40-40v: unrelated text]

- Cap. 8. Dos signos do zodíaco, e em particular de suas naturezas. – fol. 41
- Cap. 9. De algumas diuissões do zodíaco. – fol. 42
- Divisão segundo os quatro tempos do ano. – fol. 42
- Diuisão dos signos moueis, fixos, e *commun*s. – fol. 42
- Cap. 10. Doutras duas diuissões dos signos. – fol. 42v

Second copy:

- Astrologia.** Doutrina P. M. [blank] escrita no collegio de S. Antão. – fol. 43
- Tratado 1º. Dos principios da Astrologia.** Proemio. – fol. 43
- Cap. 1º. *Que* cousa seja *Astrologia*, e como se destige da astronomia. – fol. 43
- Cap. 2º. Se se pode saber alguma cousa *por* Astrologia. – fol. 43v
- Cap. 3º. Se he licito alevantar figura, e de *que* cousas se pode alevantar, e *que* cousas não. – fol. 44
- Cap. 4. Dos planetas, e em particular de sua natureza. – fol. 44v
- Se pode acontecer *que* os planetas fortunas seião infortunas a respeito de humas cousas, e as infortunas seião fortunas a respeito de outras. – fol. 45
- Cap. 5º. Dos effectos *que* costumão causar os planetas. – fol. 45v
- [Saturno] Saturno. – fol. 45v
- [Jupiter] Jupiter. – fol. 46
- [Marte] Marte. – fol. 46v
- [Sol] Sol. – fol. 46v
- [Venus] Venus. – fol. 46v
- [Mercurio] Mercurio. – fol. 47
- [Lua] Lua – fol. 47
- Cap. 6. Das dignidades essenciaes dos planetas. – fol. 47
- Primeira* dignidade essencial [casa] – fol. 47v
- 2.^a dignidade ou fortunio essencial [exaltacam] – fol. 48v
- 3.^a dignidade [triplicidade]. – fol. 49
- 4.^a dignidade [terminus] – fol. 49
- 5.^a dignidade essencial [face] – fol. 49v
- Cap. 7. Das dignidades fortalezas ou fortunios acidentais dos planetas. – fol. 50v
- 1.^a dignidade accidental que he dos aspeitos – fol. 50v
- 2.^a dignidade accidental [elevacam] – fol. 52
- 3.^a dignidade accidental [oriental e occidental] – fol. 52v
- 4.^a dignidade accidental [diurno/nocturno] – fol. 52v
- 5.^a dignidade accidental [sexo] – fol. 53
- Cap. 8. Dos signos do zodíaco e em particular de suas naturezas. – fol. 54

Cap. 9. Dalgumas diuisões do zodiaco. – fol. 54v
 Divisão segundo os 4 tempos do ano. – fol. 54v
 Diuisão dos signos em moueis, fixos e *commun*s. – fol. 55
 Cap. 10. Doutras duas divisões dos signos. – fol. 55v
 Cap. 11. Dos signos imperantes e obedientes, e dos signos rectos e oblíquos, ou antições. – fol. 56
 Cap. 12. Da natureza e qualidades das estrelas que se achão nos 12 signos e seos effeitos. – fol. 56v
 Das estellas fixas em particular das do Zodiaco – fol. 57
 Cap. 13. Das outras estelas fixas. – fol. 57
 Aqui se poem alguas das estrelas mais insignes – fol. 57v
 Cap. 14. Diuisam das 12 das cazas celestes. – fol. 58v
 [incomplete, just one paragraph ends with the statement “Desta matera não se ditou mais” by a different hand]

Da Astrologia iudiciaria. Tratado 3.º

Proemio – fol. 58

Cap. 1º. Da figura da comseção e do nascimento, e destas *qual* seia a mais ifiquas. – fol. 59
 Cap. 2º. Como pelo tempo do nascimento se pode vir em *conhecimento* do tempo da conseção. – fol. 59v
 [Cap. 3. Da alfridaria ou governo do planeta]. – fol. 60v
 [Cap. 4. Do juízo que se formará acerca dos efeitos dos planetas na concepção da criança]. – fol. 62
 [Cap. 5. Como se rectificará a figura do nascimento]. – fol. 63
 [Cap. 6. Do almutem ou Senhor do nascimento]. – fol. 64
 [Cap. 7. Do Hilec e Alcochodem]. – fol. 64v
 (chapter is incomplete)
 [ends at this point]

Second copy:

Astrologia Iudiciaria. Tratado 3º dos nascimentos

Proemio – fol. 89

Cap. Iº. Da figura da conceção e do nascimento e de estas qual sera a mais eficaz. – fol. 90
 Cap. II. Como pelo tempo do nascimento se pode vir em *conhecimento* do tempo da comseção. – fol. 90v
 Cap. III. Da firdaria, ou governo do planeta etc. – fol. 92
 Cap. IV. Do iuizo *que* se formara asserqua dos efeitos dos planetas na conceição da criansa. – fol. 93v
 Cap. V. Como se rectificara a figura do nascimento. – fol. 94v
 Cap. VI. Do Almutem ou *Senhor* do nascimento. – fol. 96v
 Cap. VII. Di Hilec e Alcochodem. – fol. 97

[blank space followed by another text, perhaps a continuation of chapter VII. It is a discussion on various matters considering planetary strengths and dignities, followed by an apparently unrelated segment regarding physiognomy, different from the following chapters on the subject]

Cap. VIII. Da forma, figura, compreição, estatura. – fol. 100
 Cap. IX. Da filosomia do nascido, e forma, figura e estatura, etc. – fol. 101
 Cap. X. Dalgumas cousas *que* se hão de guardar no iuizo da filosomia, etc. – fol. 101v
 Cap. XI. Dalgumas regras *para* o iuizo das emfermidades. – fol. 104v
 [ends at this point]

Third copy:

Da Astrologia Iudiciaria. Tratado 3º dos nascimentos

Proemio – fol. 122

Cap. 1. Da figura da conceição, e do nascimento, e destas qual seia mais efficas. – fol. 123
 Cap. 2. Como pelo tempo do nascimento se pode vir em *conhecimento* do tempo da comceicam. – fol. 123v

Cap. 3º. Da firdaria, ou governo do planeta etc. – fol. 124v
Cap. 4. Do iuizo *que* se formara asserqua dos efeitos dos *planetas* na conceição da criansa. – fol. 126v
Cap. 5. Como se rectifica a figura do nascimento. – fol. 127
Cap. 6. Do Almutem ou *Senhor* do nascimento. – fol. 128v
Cap. 7. Di Hilec, e Alcochodem. – fol. 129

[same as noted above]

Cap. 8. Da forma, figura e statura, e *qualidades* corporais do *que* nasce. – fol. 132
Cap. 9. Da filosomia do nacido, e forma, figura e statura, etc. – fol. 132v
Cap. 10. Dalgumas couzas *que* se hão de guardar nos iuizos de filosomia. – fol. 133v
Dominio dos *elementos* nos membros humanos e noutras *muitas* couzas. – fol. 134
Cap. 12 [sic]. Dalgumas regras *para* o iuizo das emfermidades. – fol. 136
[ends at this point]

BA Ms. 52-IX-14

This manuscript contains a miscellany of papers of the Marquis of Colares, Jerónimo de Ataíde, containing the following scientific texts (the astrology text is detailed below):

Tratado Primeiro da Astrologia (First treatise on astrology) (fragment) – fols. 97r-107v
Text on constellations (partial) – fols. 109r-118r
Tratado da Esfera (Treatise on the sphere) (partial) – fols. 125r-138v
Da Sphera (Treatise on the sphere), Thomas Berton SJ, Nov. 1641 – fols. 139r-195r; 218r-263v

Tratado Primeiro. Da Astrologia (fragment), c.1610

[Cap. 7. Das dignidades fortalezas ou fortunios acidentais dos planetas.]
5.^a dignidade accidental [sexo] [partial] – fol. 98r
Cap. 8. Dos signos do zodíaco e em particular de suas naturezas. – fol. 99r
Cap. 9. Dalgumas diuisões do zodíaco. – fol. 104v
Divisão segundo os 4 tempos do ano. – fol. 104v
Diuisão dos signos em moueis, fixos e communs. [partial] – fol. 106r

Simon Fallon

BNP Cod. 2127

Materias mathematicas nas quais se contem Astronomia, Astrologia, e Outronometria. 1628

Contains several texts with teachings on mathematical and astronomical subjects by Simon Fallon. The astrology lessons (detailed below) are a continuation of the theoretical astrometry course:

Astrometria tiorica propria das estrellas fixas (Theoretical astrometry for the fixed stars) – fols. 1r-85r

Astrologia Prática (Practical Astrology) – fols. 86r-177v

Cemtronomia pratica he especolativa (Measurement of gravity centres practical and theoretical) – fols. 178r-218r

Astrologia Pratica

Proemio – fol. 86r

Questão premial. Da erezia nesecidade e proueiros da astrologia pratica – fol. 86v

Secção 1ª. Que couza seja a astrologia pratica qual seu oubugeto, e como se destige da Astronomia. – fol. 86v

Secção 2ª. Se Astrologia Pratica he sciencia – fol. 87r

Secção 3ª. Se he licita a astrologia pratica – fol. 88v

Secção 4ª. Da necessidade e proueito da Astrologia pratica – fol. 89v

Tratado 1º. Dos Pricípios Geraes da Astrologia pratica

Proemio – fol. 90v

Disputada 1ª. Do conhecimentos das estrelas Fixas nesecarias *pera* a Astrologia – fol. 91r

Secção 1ª. Das deuseois principais do Zodiaco. – fol. 91r

Secção 2ª. Das naturezas, calidades e influencia dos sinos celestes – fol. 94r

Secção 3ª. Qual seja a natureza e esicia? das mais estrellas fixas – fol. 95r

Secção 4ª. Da Eficacia *que* os diuerços aspectos cauzão nas estrellas, e sinos celestes – fol. 97r

Secção 5ª. Se as estrellas se ão de regular plo Zodiaco tabular ou pelo ceo estrelado. - fol. 98v

Disputada 2ª. Do conhecimento dos Palnetas necessário *pera* a Astrologia pratica. – fol. 99v

Secção 1ª. Do nº e grandeza, ordem e períodos dos planetas. – fol. 99v

Secção 2ª. Da natureza e Planetas em comcion(?). - fol. 102r

Secção 3ª. Da imfluencias particulares de cada planeta. – fol. 104v

Secção 4ª. Das dignidades essenciais dos Planetas. – fol. 105v

Secção 5ª. Das dignidades acidentais dos Planetas. – fol. 110r

Secção 6ª. Dos dias e horas em *que* reinão os Planetas. – fol. 115v

Secção 7ª. Das comiuncois principais dos Planetas. – fol. 117r

Disputada 3ª. Das cazas selestes etc. – fol. 117v

Secção 1ª. Do nº e circulo? *que* costetuem as cazas selestes. – fol. 117v

Secção 2ª. Da natureza e influencia das cazas celestes. – fol. 120r

Secção 3ª. Do domínio *que* tem os Planetas em as cazas celestes. – fol. 121v

Secção 4ª. Como se aleuantara *huam* fegura a qualquer hora. – fol. 122v

Secção 5ª. Dignidades da figura celeste. – fol. 129v

O Almutem ou *senhor* da figura – fol. 129v

Lugares Apheticos na figura – fol. 130r

Apheta ou *hylech* na figura – fol. 130v

Alchocodem na figura – fol. 131v

Anos que *prometem* os planetas sendo Alchocodem – fol. 132r

Lugares Anatumezas(?) na figura – fol. 132r

Serte [sic: sorte] ou parte da furtuna – fol. 132v
Cabeça e cauda do dargam na figura – fol. 133r

Tratado 2º. Da Astrologia pratica. Para os Iuizos dos tempos

Proemio – fol. 134v

Disputad 1ª. Das Causas oneuersais de *que* depende o juízo dos tempos. – fol. 135r

Secção 1ª. Asinase algumas causa huniuersais a que os antigos atribuirão as mudansas dos tempos. – fol. 135r

Secção 2ª. Com sinificação os eclipses as mudanças geraes do tempo. – fol. 137v

Secção 3ª. *Que* couza sejam Eclipses, como se fazem e observão – fol. 138r

Da significasom dos eclipses – fol. 147v

Secção 4ª. Como cauza e sinigiquam os cometas mudanças de tenpo – fol. 150r

Disputada. 2ª. Das cauzas particulares das mudansas do tempo – fol. 155r

Secção 1ª. Das mudansas *que* no tempo cazão o senhor do anno. – fol. 155r

Secção 2ª. O que pronosticão os Planetas sendo senhores do anno. – fol. 157v

Secção 3ª. Das mudanças particulares dos mezes do anno. – fol. 158r

Secção 4ª. Das mudanças do Ar em cada dia. – fol. 160r

Secção 5ª. Das mudanças *que* os uentos cazão em o Ar. – fol. 160v

[Disputada. 3ª. Dos nascimentos] – fol. 161v

Secção 1ª. A *que* tempo se aleuantara a figura do nascimento. – fol. 161v

Secção 2ª. Das direccoins. – fol. 164r-v

Secção 3ª. Como se colhera os *senhores*(?) da *figura* em *hum* movimento. – fol. 166r-v

Sessão 4ª. Como se iulgara da uida do nacido. – fol. 168r

Secção 5ª. Como se iulgara da estatura e temperamento do nacido. – fol. 169r

Secção 6ª. Como se iulgara das infermidades do nacido. – fol. 170r

Secção 7ª. Como se iulgara dos mais aci[d]entes e efeitos do nacido. – fol. 172v

Secção 8ª. Do Juizo *que* se pode fazer da philozomia do nacido. – fol. 173v

Compendio Astrologico e iudiciario. 1639

Questão Prohaemial – fol. 1

Que cousa seia Astrollogia iudiciaria, E se he licita, necessaria, e proueitosa *para* a republica. – fol. 1r

Titulo. 1º. Que cousa seia Astrologia e como se destingue das outras sciencias – fol. 1v

Titulo. 2º. Se a Astrologia he sciencia ou não – fol. 2r

Titulo. 3º. Se a Astrologia he liçita ou não – fol. 4r

Titulo. 4º. Da necessidade, Nobreza e exproveito da Astrologia – fol. 7v

Tratado 1º. Da figura caeleste – fol. 8r

Cap. 1º. Que coisa seia figura caeleste – fol. 8r

Cap. 2º. Como se alevanta a figura caeleste – fol. 10r

Cap. 3º. Como se asentão na figura as Strellas fixas – fol. 41v

Cap. 4º. Como se asentão os planetas na figura celeste – fol. 47r

Cap. 5º. Como se poem na figura caeleste o caput e cauda draconis e juntamente a parte da fortuna – fol. 49v

Tratado 2º. Dos principios geraes donde se forma o juizo astrológico – fol. 52r

Cap. 1º. Declaranse a natureza e influencia das strellas fixas, principalmente dos signos do Zodiaco – fol. 52r

Cap. 2º. Declaranse a natureza e influencia dos planetas – fol. 55r

Cap. 3º. Declaranse a natureza e influencia das casas caelestes – fol. 69r

Cap. 4º. Que cousa he *senhor* da figura e como se averigua – fol. 72r

Tratado 3º. Do Juizo astrologico dos tempos – fol. 75v

Cap. 1º. Que terras e, e como se suguem as influencias dos corpos caelestes – fol. 75v

Cap. 2º. Declarãose as causas uniuersais das mudanças do tempo – fol. 80r

Cap. 3º. Que pronosticão as conjunções eclípticas – fol. 82v

Cap. 4º. Como se forma o juizo astrologico do anno – fol. 105r

Cap. 5º. O juizo astrologico dos meses conjuncionais e oposições das luas – fol. 113r

Cap. 6º. Juizo astrologico de cada dia – fol. 116r

Cap. 7º. Juizo dos tempos por alguns sinaes aparentes – fol. 119r

Tratado 4º. Dos nascimentos – fol. 120v

Cap. 1º. A que tempo se alevanta a figura, se ao da conceição se ao do nascimento – fol. 120v

Cap. 2º. Como se averigua a verdadeira hora de hum nascimento? – fol. 121r

Cap. 3º. Juizo astrologico da vida – fol. 125v

Cap. 4º. Juizo astrologico da compleição e inclinações naturaes do nascido – fol. 127r

Cap. 5º. Juizo astrologico das doenças – fol. 128v

Cap. 6º. Como se julgarão os mais accidentes da figura – fol. 131v

Cap. 7º. Juizo que se forma da phizionomia do nascido – fol. 132v

Tratado 5º & ultimo. Das direcções, profecções annuais & revoluções – fol. 136r

Cap. 1º. Que coisa seia direcção, significador & promissor? – fol. 136r

Cap. 2º. Como se fazem as direcções? – fol. 136v

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BA Ms. 46-VIII-22

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Tratado da Astrologia. c.1710

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Apparencia 29ª. Das mudanças do ar pella conjunção do Sol com algumas estrellas – fol. 93r
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Unknown authors

ANTT Arquivo dos Condes da Ponte, Caixa 38, doc. 2

This manuscript contains a miscellany of mathematical texts and it is a complementary volume to BL Egerton Ms. 2063 described above. It has never been studied or catalogued, so a full description is not available – due to current access limitations it was only possible to do a preliminary study focused on the astrological texts that evidence a Jesuit origin.

Note: the foliation used in these listings is that of the text since neither the texts nor the miscellany is numbered.

Introdução astronómica (c. 1590)

Introdução astronómica. Tirada das significacão da estronomia segundo seus cacazes – fol. 1r

Parte primeira [do Zodíaco] – fol. 1v

da natureza dos 12 signos – fol. 3r

segunda parte dos planetas – fol. 3v

significacões dos planetas nos signos – fol. 5r

seguese as esaltacões dos planetas em signos – fol. 5r

dos terminos e fiz dos planetas – fol. 5v

dos decanos ou fácies – fol. 6v

dos aspeitos – fol. 7v

4 parte [sic] das casas selestes – fol. 8v

significacão das cazas – fol. 10r

segese a 4 parte dos enfurtunios dos planetas – fol. 11r

quinta parte de alguns nomes que correm entre os astronimos aserca dos planetas – fol. 12v

segese a 6ta e ultima parte do modo de levantar o tema seleste – fol. 17v

Capítulo dos significadores – fol. 21v

tratado das 4 cardines da esfera simplesmente sem nenhum aspeito de planeta – fol. 23r

Tratado dos 4 angulos do tema seleste segindo a escola dos astroligos e seus cacazes – fol. 23v

significacões dos 4 algulos do tema seleste segundo os astroleiros – fol. 24r

Second copy:

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Da natureza dos 12 signos – fol. 2r

Segunda parte dos planetas – fol. 2v

Significacões dos planetas nos signos – fol. 4r

Seguese as eisaltacões dos planetas em signos – fol. 4r

Dos terminos e fins dos planetas – fol. 4r

Dos decanos ou facias – fol. 5r

Dos aspeitos – fol. 5v

Quarta parte das casas celestes – fol. 6r

Sinificacão das casas – fol. 6v

Seguese a quarta parte dos infortunios dos planetas – fol. 7v

Quinta parte de alguns nomes que correm entre os astronimos acerqua dos planetas – fol. 8r

[ends here with incomplete diagrams]

Principios da astrologia (1590)

Note: the foliation used is that of the text since the miscellany is not numbered.

[Parte primeira]

- Cap. primeiro [introdução] – fol. 1r
- Cap. 2º da repartição dos signos – fol. 1r
- Cap. 3º das calidades das 4º quartas do zodiac – fol. 1v
- Cap. 4º das triplicidades dos signos – fol. 2r
- Cap. 5º dos signos imperantes e ubidentes – fol. 2r
- Cap. 6º dos signos comcordantes – fol. 2r
- Cap. 7 da calidade de cada signo – fol. 2v

Parte 2ª – fol. 3r

- Cap. 1º de [Saturno] – fol. 3r
- Cap. 2º de [Júpiter] – fol. 4r
- Cap. 3 de [Marte] – fol. 4r
- Cap. 4 do [Sol] – fol. 4v
- Cap. 5 de [Vénus] – fol. 5r
- Cap. 6 do planeta [Mercúrio] – fol. 5r
- Cap. 7º da [Lua] – fol. 5v
- Cap. 8 da [Cabeça] [Cauda] – fol. 6r

Parte terseira – fol. 6r

- Cap. 1º [aspeitos] – fol. 6r
- Cap. 2 da maneira que os astrólogos nomearão estes aspeitos – fol. 6r
- Cap. 3º dos poderes que tem os planetas nos signos – fol. 6v
- Cap. 4º das treplisidades dos planetas – fol. 7r
- Cap. 5º dos términos dos planetas – fol. 7r
- Cap. 6º dos signos antisios – fol. 7v
- Cap. 7 dos signos opostos – fol. 7v

4ª parte – fol. 7v

- Cap. 1º da repartição das 12 Cazas selestes – fol. 7v
- Cap. 2º das 4º quartas selestes – fol. 8r
- Cap. 3º das 2as ametades do seo – fol. 8r
- Cap. 4º dos 4º angulos do seo e dos susedentes e cadentes – fol. 8v
- Cap. 5º da primeira caza e seus efeitos – fol. 8v
- Cap. 6º da 2.ª caza – fol. 9r
- Cap. 7º da 3.ª caza – fol. 10r
- Cap. 8º da 4ª caza – fol. 11r
- Cap. 9º da 5ª caza – fol. 12r
- Cap. 10º da 6ª caza – fol. 13r
- Cap. 11 da 7ª caza – fol. 14r
- Cap. 12 da 8ª caza – fol. 15r
- Cap. 13 da 9ª caza – fol. 16r
- Cap. 14 da 10ª caza – fol. 17r
- Cap. 15 da 11ª caza – fol. 18r
- Cap. 16 da 12ª caza – fol. 19r

Quinta parte – fol. 20r

Capítulo primeiro da Elevação dos planetas – fol. 20r

Cap. 2º dalmugea dos planetas – fol. 20r

Cap. 3º da amizade e odio dos planetas – fol. 21v

Cap. 4º das fortalezas e fraquezas dos planetas – fol. 22r

6ª parte – fol. 23r

Cap. primeiro [o tema figure] – fol. 23r

Cap. 2º da igoalassão do [Sol] e demais planetas – fol. 24v

Cap. 3º de levãotar figura – fol. 24v

Cap. 4º do 2º modo de alevãotar figura – fol. 25r

Cap. 5 do modo de lansar ou asentar os planetas nas 12 cazas – fol. 27r

7ª parte – fol. 28r

Cap. primeiro como se tirão os sinificadores da figura – fol. 28r

Cap. 2 dos senhores das 12 cazas – fol. 28v

Cap. 3 do animodar – fol. 29r

Cap. 4 das partes – fol. 30r

Cap. 5 do ille – fol. 30v

Cap. 6 da alquodem uel o que da vida – fol. 31r

Tratado da Astrologia. 1641

Manuscript content:

Tratado da esphera natural, celeste, e da artificial e do seu uso (Treatise on the sphere and its use) – pp.1-202

Tratado da astrologia pratica (Treatise on practical astrology) – pp. 203-286

Tratado da aritmética (Treatise on arithmetic) – pp. 287-324

[Texts on astronomy and calendar] – pp. 325-335

[text on the *animodar* and other astrological concepts] – pp. 396-399

[assorted notes in a later hand] – pp. 341-349

Tratado da astrologia pratica

Proemio – p. 203

Capitulo 1. Dos 12 Signos Celestes – p. 204

§1. De suas diuisiones, e em que partes do corpo humano, e em que terras ten hão seu domínio – p. 204

§2. Da natureza e influencias dos sete Planetas, e de seu dominio sobre os dias, noites, idades e pessoas. – p. 212

§3. Das doze casas e mode de galevantar figura ou thema celeste. – p. 222

§4. Das dignidades essenciais dos Planetas. De seus aspectos enquanto suas boas ou mas qualidades, e da concórdia, e discordia huns com outros. – p. 238

§5. Como se iulgara da Fortalesa ou Fraquesa dos Planetas. – p. 251

§6. Dos graos que no Zodiaco são Fortunados, Puteales, Azemenas, Masculinos, Femininos, Tenebrosos, Lucidos, Fumosos, e Vasios. – p. 254

§7. Da Natureza das Estrellas do Firmamento. – p. 255

§8. e ultimo. De Alguns Avisos gerais pera os juizos serem acertados. – p. 257

Capitulo 2. Dos Juizos Universais e particulares dos Tempos. – p. 259

§1. Como se ha de Julgar do Tempo pelos eclipses do [Sol] e [Lua]. – p. 259

§2. Como se Julgara do Tempo pellas conuinutes [sic] Maximas. – p. 265

Taboa das coniunções passadas dos 2 planetas superiores – p. 268

§3. Do Juizo de cada Anno. – p. 272

[Dos efeitos dos Planetas nos signos] – p. 277

§.4 Do Juizo das 4.^{as} do anno e dias da somana – p. 283

B. Notes on the authorship of the astrological texts on Egerton Ms. 2063

This appendix provides some additional data regarding the revising of the authorship of the astrological material and related texts of the British Library, Egerton Ms. 2063, discussed in Chapter 10. Until now the texts have been associated with Francisco Delgado who taught the *Aula* sporadically as an assistant to João Delgado in the 1590's decade, and then as its designated professor from 1602 until his death in 1604. However, as noted in Chapter 10 there are several pieces of evidence pointing otherwise.

The first evidence comes from the introductory section of the *Astrologia Judiciaria*. The text cites the work *Opus de virtute, et statu religionis* by Francisco Suárez on the matter of the calculation of nativity figures:

... it is well demonstrated by Father Francisco Suárez, in his first tome on religion [*Opus de virtute, et statu religionis*], that of the bull of pope Sixtus, no prohibition is given against the erection of such a figure; on the contrary, it permits it; it is concluded that the aforementioned bull intends to exclude and prohibit all that cannot be exercised without the dependency of human will...⁷⁵⁴

As seen in Chapter 6, this book was only published in Coimbra in 1608, thus four years after Francisco da Costa's death and therefore, impossible for him to quote. As Suárez was based in Portugal, it could be argued that Costa might have had access to the texts before publication, but not only is this unlikely, but also the form of citation suggests that it was from a book rather than a manuscript. Any doubts are quickly clarified a little further in the text where a reference is made to the index 'that now came from Castile', that is the Index of 1612.⁷⁵⁵

In the index of the forbidden books that now came from Castile, they say, expressly citing this bull by Sixtus, that they can erect figures of births and of many other things.⁷⁵⁶

This was only published at the end of the year and likely reached Portugal at the beginning of 1613, long after the death of Francisco Costa. Considering the citation of Suárez, which had to be after 1608, this cannot be any other index. The previous Spanish index was published in

⁷⁵⁴ ... prova bem o Padre Francisco Soares no seu primeiro tomo da relegendam que do breve do papa xisto, se não colhe proibição alguma contra alevantar da tal figura, antes o permite, em concluir que tudo pretende o dito breve excluir e prohibir, quanto se não pode exercitar sem dependencia da vontade humana ...

⁷⁵⁵ Bernardo de Sandoval y Rojas, ed., *Index Librorum Prohibitorum et Expurgatorum* (Madrid: Luís Sanchez, 1612). This is the first index to include an extension to the original ninth rule, which makes a special consideration regarding nativities. The earlier Spanish index of 1583 did not present this specific statement on nativities (see: Gaspar de Quiroga, ed., *Index et catalogus Librorum prohibitorum* (Madrid: Alonso Gómez, 1583), fols 3v–4v.), and the following editions of 1632 and 1640 only repeat this segment but by then it was already in place the Portuguese index of 1624 published in Lisbon.

⁷⁵⁶ No índice que agora veio de Castela, dos livros prohibidos, dizem que expressamente declarando este breue de Xisto que podem levantar figura de nacimentos, e de outras muitas cousas.

1583-1584, and the word ‘now’ (agora) implies a very recent event.⁷⁵⁷ Additionally, the author’s description fits the text of the 1612 index quite well. In rule nine, regarding books on astrology, are first stated the common directives regarding judicial astrology:

All [books] of judicial astrology, which is called of nativities, interrogations, and elections, in which is stated, or given rules, or teach the art or science to know by means of the stars and their aspects, the contingent futures, achievements, or chance events, or actions dependent on human will, even if in such books and in other places it is stated, and disputed, that it is not declared as certain; or in which is taught to reply to what was done, or what happened in past events, and secret, of thefts, and other similar thing, even if it is also said that it is not stated as certain. And it is forbidden and ordered that no person makes judgement about the aforesaid thing. However, judgements and natural observations which are written or made to assist on navigation, agriculture, or medicine are permitted; and those that address the knowledge of weather, and general events in the World that necessarily, or frequently, derive from natural causes, which do not belong to divination.⁷⁵⁸

It then follows, as the Egerton author describes, a statement specifically concerning the judgement of nativities:

The judgement of nativities is also permissible, that without statement [of certainty] teaches one to conjecture the inclinations and corporeal qualities of each person, without addressing in any manner the said contingent futures, achievements, or chance events, or actions that depend on the will. And it is warned that, except in the cases in which, according to the Law, the Holy Inquisition could proceed to the knowledge and punishment of all that in the aforesaid matters exceed themselves, by the particular constitution of the good bull of Sixtus V, Roman Pontifex, it is the duty of the Holy Inquisition which will proceed against them will all rigor.⁷⁵⁹

This second piece of evidence strongly suggests that the *Astrologia iudiciaria*, was written shortly after 1612, possibly around 1613 or 1614. This also excludes the possibility of João Delgado being the author of the texts as he died on 30 September 1612. A detailed analysis of the text confirms this. Despite being similar in structure to Delgado’s text, the presentation of the astrological content is considerably different and there are none of the usual repetitions of

⁷⁵⁷ Maria Teresa Payan Martins, ‘O Índice Inquisitorial de 1624 à luz de novos documentos’, *Cultura* 28 (2011): 68; see also Jesús Martínez de Bujanda, *Index de l’Inquisition espagnole*, 2 vols (Sherbrooke; Genève: Editions de l’Université de Sherbrooke; Librairie Droz, 1984).

⁷⁵⁸ Todos los de la Astrologia Iudiciaria, que llaman de Nacimientos, Interrogaciones, i elecciones, en que se afirman, ò dan reglas, o enseña arte o sciencia, para conocer por las estrellas i sus aspectos, los futuros contingentes, sucessos, o casos fortuitos, o acciones que dependen de la voluntad humana, aunque em los tales libros, i las demas cosas se diga, i proteste, que no se afirma de cierto: o en que se enseña a reponder lo hecho, o acontecido en las cosas passadas, libres, i ocultas de hurtos, i otras semejantes; aunque se diga tambien, que no se afirma de cierto. I se prohibe i manda, que ninguna persona haga juizio cerca de las cosas dichas. Pero bien se permiten los juizios, i naturales obseruaciones, que estan escritos i se hazen para ayudar a la Nauegaciõ, Agricultura, o Medicina: i los que tocan al conocimiento de los tiempos, i sucessos generales del mundo, que necessaria, o frequentemente prouienen de causas naturales, los quales no pertenecen a diuinacion.

⁷⁵⁹ TAMBIEN Se permiten los juizios de nacimientos, que sin afirmacion enseñan a conjeturar las inclinaciones i calidades corporales de cada vno, sin passar en manera alguna a los dichos futuros contingentes, sucessos, o casos fortuitos, o acciones que penden de la voluntad. I se adierte, que fuera de los casos em que conforme a Derecho podia el Santo Oficio proceder al conocimiento, i castigo, de los que en lo suso dicho excedieren, por Constitucion particular de la buena memoria de Sixto Quinto Pontifice Rom. toca al Santo Oficio, donde se procederà contra ellos com todo rigor.

content typically found in a second version of a text. Considering that the text was written for the *Aula da Esfera* around the end of 1612 or beginning of 1613, it can be deduced the author to be Sebastião Dias, who was the professor from 1610 to 1614.

There are other indications in Egerton 2063 to support this hypothesis. There are several other texts in the Egerton manuscript by the same hand and presenting the same type of amendments as one of the copies of *Astrologia judiciaria*, the text on the comets, and the isolated folio. These are a text on geography (*Tratado da Geografia*, fols. 65r-81r), a treatise on hydrography and navigation (*Tratado da hydrographia e arte de navegar*, fols. 140r-172v), a treatise on the sphere (*Tratado da esfera*, fols. 209r-220v), and a compendium on cosmography (*Breve compendio da cosmografia*, fols. 173r-188v).⁷⁶⁰

The treatise on hydrography and navigation provides the most evident testimony. On folio 166r, it is presented as an example of the calculation of the tide for the date of 19 December of 1611 and on folio 167r the text mentions ‘the current year of 611’ presenting a table of the new moon for the years 1610 to 1634. Not only the date of the example falls in the period when Sebastião Dias was teacher, the table starts in 1610 when his classes began, offering a very strong confirmation of his authorship of the treatise on hydrography.⁷⁶¹

Two other pieces of evidence emerge from certain references in the astrology treatise to the other texts. In chapter two of the third treatise there is a mention to a text on the sphere that could well be the one on folios 209r to 220v. Similarly, the treatise on the sphere mentions the treatise on astrology in two instances. The first when the author mentions those that denied the celestial influences and ‘against whom in our [text on] astrology we greatly disputed because it was needed’.⁷⁶² This disputation is clearly the one found in the introductory part of the first treatise on astrology in chapters two and three. The second is made in the discussion of the prognostication of the winds, where it is specifically stated that this will be dealt in the second part of the astrological treatise:

⁷⁶⁰ Most of these texts are either incomplete or scattered in the manuscript; some are several times intercalated with folios from other texts. An example is a treatise on music of a completely different hand that appears throughout the manuscript.

⁷⁶¹ This treatise was attributed to Francisco Costa by the historian Luís Albuquerque, who believed it to be another version of Costa’s famous navigation manuscript currently held in the library of the National Maritime Museum, MS NVT/7. See: Albuquerque and Costa, *Dois obras inéditas do Padre Francisco da Costa*. However, a comparison of both manuscripts, reveals two different texts, albeit some similarities either due to copy or through the use of the same source texts.

⁷⁶² contra os quais em nossa Astrologia largamente por assi ser necessario disputamos (fol. 221r).

The significations of the winds and their prognostication we do not wish to address here because it belongs more appropriately to the second part of our astrology where it will be extensively looked at.⁷⁶³

This connection between the astrology text and the one on the sphere is further consolidated by the fact that MS 52-IX-14 from Biblioteca da Ajuda, which has the only other known copy of Egerton's astrology text, also contains a copy of this treatise of the sphere (fols. 125r to 138v), both by the same hand.

Another evidence comes from the first part of the *Astrologia iudiciaria*. Chapter seven mentions a treatise on cosmography where the topic of the efficacy of the planets in their circles was previously discussed. This could be the compendium on cosmography on folios 173r to 188v, and its introduction provides a larger picture for this set of texts. It appears that both the abovementioned text on hydrography and navigation, and the treatise on the sphere, as well as the text on geography are in fact parts of the compendium on cosmography. In the introduction the author states that he will divide the treatise into five parts, the first being 'on the sphere', the third 'geography', and the fourth precisely 'on hydrography and the art of navigation'. Furthermore, he also notes at the end that if there is time, he will also address judicial astrology:

All this treatise or compendium we divide for now in five parts or sections in which we will address all that belongs to cosmography, as much as the bounds of brevity allow us to say. In the first parts or treatises we will say of astronomy [that which] is convenient to know. In the first, of the sphere of the natural world, and of the material with all things belonging to the world. In the second we will explain the theories of the planets. In the third treatise or section we will address geography. In the fourth of hydrography and the art of navigation. In the fifth we will address the subject of clocks. I said 'for now' because if it suits some curious, it might be that we will address, at the end of this work, astrology or judicial, mainly that part that deals with weather.⁷⁶⁴

This last sentence implies that the *Astrologia iudiciaria* is the last segment of this cosmography programme. This is further corroborated by a reference to the astrology treatise in the section 'On the element of Air' (Do elemento Ar), where the author states that:

Of this element we shall say little because what can be said about it, I believe, it falls better in the judicial art and in the astrology.⁷⁶⁵

⁷⁶³ Das significações dos ventos e seus pronosticos não queremos aqui tratar por pertencer mais propriamente a 2.^a parte de nossa Astrologia onde largamente se podera ver (fol. 229r).

⁷⁶⁴ Todo este tratado ou compendio diuidimos por agora em sinquo partes, ou secções, nas quais trataremos tudo o que pertencer a cosmographia, quanto entre os termos da brevidade se poder dizer. Nas primeiras partes, ou tratados diremos da astronomia convem a saber. No primeiro da sphaera do mundo natural, e material com outras cousas pertencentes ao mundo. No 2.^o explicaremos as theoricas dos planetas. No 3.^o tratado ou secção trataremos da geografia. No 4.^o da hydrographia, e arte de navegar. No 5.^o trataremos a materia dos relógios. Disse 'por agora' porque separver a alguns curiosos pode ser que trataremos no fim desta obra da astrologia, ou iudiciaria principalmente aquella parte que trata dos tempos. Egerton 2063, fol. 173r.

⁷⁶⁵ Deste elemento diremos pouco, porque o que dele se pode dizer, e tenho para mim que caia melhor na iudiciaria, e astrologia (fol. 179r).

Additionally, the treatise on the sphere also refers the lessons on hydrography (fol. 212v), geography (fol. 220v) and navigation (fol. 226r) showing a connection between the various texts on the Egerton manuscript. Of the texts mentioned in the introduction only the ones on the theories of the planets and on horology are missing from the manuscript. All five texts (the astrological treatise in four parts, the treatise on hydrography, the compendium on cosmography, the geography treatise, and the text on the sphere) together with the astrological treatise on the comets and the isolated astrological folio, present various redactions and amendments suggesting they are the original copy made by the author.⁷⁶⁶

⁷⁶⁶ The Geography text was also attributed to Francisco Costa by Luís Albuquerque, but he hesitated regarding the remaining texts, see: Albuquerque, 'A "Aula de Esfera" do Colégio de Santo Antão no Século XVII', 13–15; *Duas obras inéditas do Padre Francisco da Costa*, 31–32. As with the case of the hydrography treatise, a comparison of the two texts shows them to be different works.

APPENDIX IV – DOCUMENTS

Document 1: João Delgado's defence of astrology

Delgado's defence of astrology appears as part of a larger debate regarding the validity of mathematical sciences. Here is transcribed the introduction and the segment on the dignity of astrology from the copy at Biblioteca Pública Municipal do Porto, Ms. 644 (1605).

fol. 40r-v

Na introdução pera a sciencia da esphera do mundo dissemos que toda Ella se podia diuidir commodamente em duas partes principais nas quais o autor da natureza Deus nosso senhor comprehendio todo o mundo, conuem a saber Celeste e Elemental, que são hum subieyto da Astronomia universalmente. E posto que a ordem da doctrina pedia começarmos pelo mais facil, como na sua astronomia fes Ptolemeu, toda uia pera satisfazermos ao gosto dos ouvintes, guardando a ordem da natureza, comecaremos com o fauor diuino pelo mais principal.

Diuide Ptolemeu no principio do quadripartito a Astronomia em espiculativa e pratica; na espiculativa (a que elle chama sciencia do Sol e da Lua, e das cinco estrelas erraticas) trata das figuras, das granduras, mouimentos, aspeitos, coniunções, quadraturas, opposições, direcções, estações, retrogradações, distancias maiores e menores do centro do mundo, e outras paixões dos corpos celestes assim absolutamente em cada hum como feita comparação entre elles e o ponto ou baliza firme, ao redor da qual se mouem que he o elemento da terra: e desta tratou Ptolemeu no Almagesto ou grande construção, e tratarão depois delle outros autores, huns commentando, outros recopilando, outros computando, tauoadas, cada qual com seu intento de que ha muitos.

A astronomia pratica, cuio fim he explicar as mudanças e accidentes naturais, que andem acontecer no mundo Sublunar por causa das figurações e influencias dos luminares, e das outras estrelas mais mediante seu movimento e lume, que elles abraçam, primeiramente nos elementos e depois nos mistos de todos os generos, que deles de das suas quatro primeiras qualidades em mil maneiras temperadas e modificadas se compoem. Huns lhes chamaram Judiciaria, outros conieituraria, outras pera distincção da primeira lhe pozeram nome Astrologia, da qual tratou Ptolemeu no quadripartito e centoloquio, e trataram muitos Arabes antigos não somente superflua, mas temeraria e supersticiosamente.

Questão 2.^a Se a Astrologia tem o primeiro grau de dignidade entre as sciencias humanas.

A brevidade do tempo que ha té o fim do anno encontrada com o desejo de tractar as cousas compridamente, nos faz apartar o estilo, e deixar de todo algumas questões coriosas de prologomenos, que se costumão tractar no principio da esphera do mundo para veremos, se podemos explicar da Astrologia tanto quanto baste pera os ouuintes podersea per si sós, com ajuda de autores continuar conforme ao gosto e a priuação de cada hum contentando nos por hora antes da questão do numero dos çeos, em se por somente a que prometemos na introdução da ordem ou dignidade da Astrologia entre as outras sciencias, diferindo outra questão, que se não pode escusar com esta, conuen a saber, se Astrologia pratica he sciencia certa, honrosa, proueitosa e digna de hum homem bom Christão, pera quando della começarmos a tractar acabadas as theoricas. E ainda que alguns fação distincão entre o significado das uoses Astronomia e Astrologia como já dissemos, nos compreenderemos ambas com hum só nome commum de Astrologia com a distincão de pratica e espiculativa, como faz Ptolomeu no quadripartito, e faz Lucio Belancio nas suas questões da Astrologia, Aristoteles nos seus livros dalma em o principio dos liu[ros] aponta dous indicios por meio dos quais se pode fazer iuizo certo da dignidade ou excellencia entre quaisquer sciencias, estes são nobreza de subieito ou matéria de que trata e certesa no modo de procedes. Tem resão Aristoteles porque todo o saber he hum obrar ou actuar-se, como falão os physicos, e entre as obras ou occupaões de dous princípios se iulgua a dignidade de ellas, conuem a saber do objecto e da qualidade ou mode de obrar. Quanto ao objecto pouase porque delle toma a obra espificasão com de fim e de causa sua, quanto o fim ou causa he melhor e mais nobre tanto melhor e mais excelentes são os actos delle acerca. Desse modo se iulga, urbi gratia, per mais nobre occupação fazer huma ioya que fazer hum banco. Tendo logo a sciencia com o seu objecto, fica claro que aquella sciencia pera mais nobre se tiver mais nobre o subieyto.

O segundo motivo de dignidade entre as sciencias he o modo de proceder nas demonstracões: porque sendo a certesa forma ou resam formal da sciencisa, não quer dizer outra cousa sciencia, senão hum certo conhecimento da uerdade: e esta certesa acquirese procedendo nas causas pela os effeitos, e os effeitos pela as causas: como quer Aristoteles no 3. dos posteriores: de modo que quanto este processo for mais firme e mais certo, tanto será a sciencia e mais nobre no modo ou qualidade de demonstrar: e todauia a Astrologia em ambos os motivos excede as demais sciencias humanas, conuem a saber, na nobresa do subieito e na certesa das demonstraões, logo he maos nobre que todas as outras sciencias. Prouo da nobresa do subieito

ser o mais nobre, porque he o ceo ingenerauel e incorruptiuel, isento das alterações damnosas assim ao todo com às partes. He causa universal de todas as cousas inferiores: e por isso Aristotles no 8. Dos physicos lhe chama uida das cousas naturais. He mais chegado no lugar e na uirtude de influir ao primeiro ser de Deos Nosso Senhor, e instrumento seu pea mediante o lume e movimento produzyr as cousas corporaes: he lugar das cousas diuinas, tem os seos accidentes como figura, movimentos, lume, perspicuidade, firmesa, etc., mais nobre que todos. Logo he subieito mais nobre, que o da sciencia natural que considera corpos corruptivées e alteravées pera destruição e geração. E tambem mais nobre, que o subieito da Geometria e Arismethica puras Mathematicas, o qual he accidente, conuem a saber, cantidade separada da materia sensiucl.

Quanto a certesa das suas demonstrações excede ahi em as physicas, porque são fundadas na Arismethica e Geometria, que tem o primeiro grao da certesa, como Auerroes proua no livro 2 da Methafysica e affirmão todos dos philosophos e Astrologos com Aristoteles e Ptolemeu: he verdade que a Astrologia he muito difficultosa de alcansar, e por isso lhe chamou Escoto sciencia de Anjo: e assim os que não podem entender nada della são como o morçego, que por não poder ver o Sol com a fraquesa de seus olhos, cuida que o não pode uer ninguem: Albazar no seu interductorio differença primeira diz que sentem mal Astrologia, he sinal que lhes falta o sentido de iuizo pera ella, podiase aiuntar a nobresa da Astrologia, ueremos quanto della se deleitarão os principes, os Pios segundos, os Ptolemeos, os Adrianos, os Cesares, os Alphonsos, os Ternandes[?]: e quanto ainda pera o conhecimento de Deos como diz Latancio Firmiano, que he tam rude e tam fero, que se leuantar os olhos ao Ceo, não crer hauer alguma prouidencia, que reia e gouerne o mundo, uendo sua grandura, sua fermosura, sua ordem, seus mouimentos, sua constancia, Etc.

Se disserdes primeiro que a nobresa da sciencia iulguase da nobreza do seu subieito, e todauia a philosophia natural considera Deos enquanto primeiro mouedor dos Ceos. E astrologia considera os mesmos Ceos, que sem nenhuma comparação subieito muito menos nobre: logo a sciencia natural he mais nobre? Respondo a nobresa do subieito material não emnobrece a sciencia, senão a nobresa formal: porque a sciencia natural considera Deos enquanto primeira causa do mouimento dos Ceos, que he huma consideração mui rasteira, fica sendo a sua formalidade menos nobre que a formalidade da Astrologia, comque considera as propriedade do mouimento dos Ceos, sua uelociade, tardança, suas alterações sensiuas e insensiuas, proprias e commuas, com quanto são causas efficientes do mundo inferiro, o qual conhecimento hé mais nobre, que aquelle conhecimento do primeiro mouente assi uniuersal da philosophia.

Se disserdes segundo a especulação he mais nobre que a pratica: logo a philosophia natural, que he toda a especulatiua he mais nobre, pelo menos que aquella parte da Astrologia pratica. Respondo he uerdade, que a esta parte da Astrologia enquanto tal lhe leua uantagem a philosophia, mais por outros titulos uence a Astrologia, os quais alem dos dous que dissemos no principio que são essenciaes, auudão muito a prefeição das sciencias, como são multidão das causas, que huma alcansa mais que outra: e por esta uia a sciencia de Deos: he nobilissima, que actualmente comprende tudo. Segundo quando as cousas, que ensina, são muito ocultas e sabidas de poucos. 3.º a difficuldade em aprenderse. 4.º o modo de aprender mais chegado á prefeição das sciencias. 5.º o proueyto e commodidade, que causa aos homens em cousas de muito momento, a que tudo cabe na Astrologia. 3.º se disserdes que Astrologia pratica prosopoe o conhecimento da philosophia natural, como quer Ptolomeu no quadripartito, e como dependente della he menos nobre. Respondo que ainda que o não seia, nem por isso he mais nobre a philosophia natural, como tambem não he mais nobre, que a Sagrada Theologia, que a sopoem ou tem menos por esta causa cada huma em seu grao.

Se disserdes ultimamente que sendo a sustancia mais nobre que os accidentes, a philosophia natural, que chega a considerar dos Ceos a sustancia, será mais nobre que Astrologia: cuja consideração he só dos accidentes. Respondo que o conhecimento que a philosophia natural tem com a sustancia dos Ceos, não he sciencia antes openião ou duuida, o que he manifesto pela muita discrepancia, que entre os philosophos ha acerca della: fazendo huns o Ceo de sustancia simples, outros de sustancia de fogo, outros composto de materia e forma, e da materia huns da especie destrouta inferior, outros de especie diferente: de modo que não demonstrando nada, tudo fazem duuidoso. E os Astrologos fazem per si hum modo proprio pera conhecer a sustancia, dizendo que he aquella da qual procedem tais e tais effeitos: se dissermos o fogo he de huma sustancia, do qual procede tanta quentura, tanta luz etc. e deste modo uai correndo por Saturno e Jupiter e mais Planetas e mais estrellas fixas sem perigo de errar nas sustancias: como tambem fez Aristoteles no livro 2.º e 3.º dalma, onde diz que o entendimento he aquella sustancia, da qual procedem tais ou tais operações, que he o modo mais seguro em cousas ocultas e muito remotas do sentido.

Document 2: Introduction to *Astrologia iudiciaria* by João Delgado (1607)

The text presented is a edition from the known manuscripts. The text variations are almost inexistant and mostly a matter of spelling or choice of abbreviation.

Astrologia pratica

Proemio

Explicadas as teóricas e paixões dos planetas que resultam dos seus movimentos com Ptholomeo no Almagesto onde perfeitamente trata daquela parta da sciencia superior chamada astronomia que estribada em sertissimas demonstrações geométricas, ilustremente ensina os movimentos, granduras, sítios, distâncias, conjunções, opposições, e outras apparencias dos corpos celestes. Seguese que com o mesmo Ptholomeu no Quadripartito e Centiloquio ou esse seja seu ou como Nabot e outros querem de Ermet astrologo celeberrimo do seu tempo, vemos algum conhecimento da outra parte a que com proprio nome chamão astrologia que com rezões físicas ou naturaes, fundadas em diuturna experimentação e deligentes observacoes de homens doctos procura manifestar a eficácia dos planetas e estrellas fixas os quaes mediante huma certa simpatia ou conveniencia exercitão nos elementos diversas mudanças e alterações, item nos Corpos elementados, maravilhosas obras, temperamentos e naturaes inclinações com outros efeitos semelhantes.

De modo que toda a astrologia em Universal entendamos que se resolve em explicar os movimentos das estrelas, que faz a theorica, e os seus efeitos, que he proprio da astrologia pratica.

Parece comoda divisão em quatro tratados o primeiro dos quais contenha à imitação de Ptholomeo e dos mais astrólogos, os principios da sciencia. O segundo trate dos juizos dos tempos. O terceiro dos nacimentos humanos, de que só fala a astrologia prática; e isto quanto nos parecer necessário pera a conservação da vida e se puder dizer sem repreensão e sensura do que toca ao divino. O quarto tratado das eleições licitas e juizos necesários para a perfeita medicina. Entremetendo algumas dúvidas e perguntas breves como costumamos por ser este o modo mais proveitoso para aprender, que o outro mudo ou pacífico sem nenhum género de alterações.

Tratado *primeiro* dos princípios da astrologia pratica

Primeira duuida Se he posiuel saberse alguma cousa natural e sientificamente por astrologia

Parese que não he posiuel *primeiramente* porque o saber das sciencias humanas he conhecer os efeitos pelas suas causas, ou totaes, ou suficientes. dos efeitos que tratão os astrologos como são as mudanças, alterações, gerações, corrucoes, do mundo sublunar não podem saber as causas suficientes nem menos as totaes Logo não he possiuel saberse alguã coussa naturalmente por astrologia. A major proposição nenhum a nega. prouo a menor. porque as caussas que os astrologos asinão são huam inferioridade de estrellas e partes do Ceo de que se não pode saber humanamente a natureza e por conseguinte nem as propiedades. E ainda que se pudera saber, tem todavia cada qual tantas outras ao redor de si juntas por presença ou por aspeito direita ou reflexamente que podem impedir ajudar e misturar seu influxo segundo as suas naturezas conformes ou descomformes que nenhum entendimento de humem poderaa julgar de qual dellas se pode achart hum tal efeito, nem qual he algua verdadeira e total causa. Logo etc.

2º *Argumento* ho modo de saber as causas da astrologia he fundado em experiencia de diuersos autores porque a vida de hum só não basta pero *muito* vagar com que alguns ceos se mouem. E tudauia estes são tão discordes entre si nos juízos que fazem e com tão diversas suposições, da quantidade, e qualidade dos mouimentos, e términos, das triplicidades, e outras dinidades e senciaeis e accidentarias dos planetas que quasi em nenhuma cousa comcordão, e logo na astrologia não há cousa de certo.

Respondendo pociuel he saberse naturalmente *muitas* cousas por meyo da astrologia. esta conclusão, alem de autoridade de todos os bons philophos e astrologos prouase o desta *maneira*. Como auista exterior se há com o seu objecto asi o entendimento humano que he vista interior com o seu. No objecto da vista exterior comprehendese todas as coussas naturalmente vesiuéis, loguo no objecto do entendimento todas as naturalmente inteliגיעis e por conseguinte is Çeos com suas esencias, naturaes influencias e propriedades que são seres naturaes e por tanto naturalmente enteliגיעis. E por esta causa quer aristotiles no terceiro da alma que o entendimento humano ainda que inferior de todos os entendimentos vensa em nobreza todas as sustâncias corporias as porque pode entendelas todas pera o qual he necessário que seja espirital de sua natureza yzento de corpo e de órgão corpóreo como he tão bem neçesario que seja a pópila dos olhos yzenta de toda a cor pera poder julgar de todas as cores.

2º. quem conhece o mais deficultoso conhecera o menos e todauia mais deficultosos são de conhecer os mouimentos presizos dos ceos dos planetas dos seus eccentricos e ypiçiclos, etc.

que os esseitos naturaes dos mesmos ceos e planetas. Loguo conhecendo os astrologos o *primeiro* conhecerão tão bem o 2º. prouo a menor porque sendo tão fácil conhecer os efeitos do ceo que não somente homens rudes do campo e marinheiros muitas veses atinão com alguns se não como dis ptholomeo ainda os brutos animaes os denuncião a seu modo antes deserem e os conhecem escomdidos na potencia das suas causas todauia o conhecimento dos períodos dos ceos, seus aspeitos suas conjuncoes e oposições infaliueis muitos sabios em outras faculdades senão fizerão tão evidentes prouas os astrologos o terião por imposiuel logo etc.

Diguo que he mais facil o conhecimento da astrologia platica comparandoa com o conhecimento da especulativa. posto que ensi considerado seja asaz defícil ou defiçillimo, como que marco tullio no *primeiro* de oratore e escoto sobre as sentenças onde lhe chama poe rresão da sua dificuldade sciencia de Anjos. E ja pode ser que por esta caussa com hum desdém gracioso a sacodem tanto de sua obrigação neste tempo os mestres dos cursos philosophicos. sendo ella asi na sustança do obgetto como no modo de demonstrar tão natural como as demais partes da philosophia. antes ocumme da mesma filosofia mas como disse o sabio nen todos podem hir a Corinthio.

Aao *primeiro* argumento en contrario diguo que falando do exzacto conhecimento dos efeitos naturaes he nesesario saberense as suas caussas totaes ou pelo menos bastantes. porem enquanto elles dependem das causas superiores basta saberense em geral como diz ptholemeo aconselhando a todo o astrologo que não se ponha a risco de errar julgando por causas universaes sem lhes ajuntar o conhecimento das causas inferiores particulares que nesesariamente concorrem pera os taes efeitos por que todas juntas e não quaes quer per si são caussas sufficeçientes ou totaes. E quanto ao conhecimento das superiores basta saber as vertudes dos doze signos do Zodiaco, dos sete planetas alguans estrellas fixas das mayores granduras cujas inffluençias são as prencipaes ainda que de ordinário concorrão outras estrellas de menor efficaça que as não alterão no essencial se não em pouco e açidentalmente.

Ao 2º Respondo que se buscarmos en todo o genero de sciências e artes acharemos *muitos* que as profeção em *muitas* opinioes entre si discordes. E quanto a sçiença he mais alta tanto por sua defículdade he major a discordia mas como as demais por iso não perdem asi não perde a sua verdade a astrologia achando ser em *muitos* exelentes astrologos quasi sempre ou pela mayor parte verdadeira. E o não concordarem sempre os autores nas sciencias nase na fraquesa do nosso entendimento que se ha no conhecimento dellas como com a luz os olhos do morçego. na Sagrada Theologia ha *muitas* openioes diversas, muitíssimas na philosophia e asi nas mais. e ptholemeu, ou hermeth na primeira palavra do centiloquio quer que o conhecimento da

astrologia practica não seja sempre de verdade infaliuel senão como nas demias partes da philosophia meão entre o nesesario e contingente, ou posiuel, e isso por Resão da inconstancia da matéria inferior na qual exsercissão os ceos sua operação que facilmente se muda de huma qualidade e de hua temperie en outra nen preseuerão *muito* em huma mesma despousição. e com tudo isto ajunto que os bons astrologos no essencial pela major parte comcordão entre si ainda que prosedão por deuersas uias como por tres diferentes modos de aleuantar as casas celestes. asi uemos que dous Relogios de diversas rodas em qualidade e numero *vem* a Responder com o essencial de mostrar as oras ambos a *huma*.

2ª duuida Se he licito o saber da astrologia

Parece que não. *primeiro*⁷⁶⁷ porque o que *muitos* doctores sagrados e santos conçilios e summos pontífices condenão abominão e prohibem com grandes penas, não deue ser licito tal he o saber da astrologia loguo não podemos dizer que he licito.

2º não deixa de ser grande aRogança e ainda espeçie de impiedade quererem saber os homens as cousas futuras que são proprias da sciencia diuina. Isto fazem os que se dão ao estudo da astrologia loguo tal sciência e tal saber não he licito.

Respondo o saber da verdadeira natural astrologia como das demais sciencias naturaes e verdadeiras sempre he, e sempre foi licito. esta proposição se proua com o que en sua defenção docta e engenhossamente escreuerão Luçio Belancio, Pedro Çiruelo, Gabriel Pirouão, contra as suffistecarias en contrario de Pico Mirandula he de quaes quer outros que a sua Jmitação sem nenhum selecto a olhos serrados condenão toda a astrologia. Item julio firmico materno no aseu *primeiro* liuro, valentin nabot; e joão de saxonía sobre alquabicio, francisco juntino, alberto pinho, jersão canselario de paris, e seis sentos outros varões católicos de nossos tempos com *muitos* de Arabia antigos e sobre todos ptholemeu, nos três *primeiros capitulos* do *primeiro* liuro aquem podemos ajuntar albumazar no *capitulo* 4º do *primeiro* liuro introductorio, argumentando belisimamente contra dez seitas diuersas de homens maleuolos jgnorantes e cobisosos que com varias calumnias perseguião em seu tempo a verdadeira astrologia.

Pera comfrimação do dito he de notar que quando se fala de astrologia practica he necesario saber apartar o ouro das fezes porque a astrologia natural e verdadeira que investiga as causalidades naturaes e uerdadeiras do çeo e das estrelas neste mundo inferior nenhum pode negar senão for mais que sego e insençiuel como diz albumazar que he verdadeira e licita

⁷⁶⁷ Margin: *primeiro* argumento

sciencia digna que todo o bom entendimento catholico e cristão que tiuer comodidade de tempo se ocupe e receba singular recreação nela asi pelos *muitos* proveitos que pode trazer consigo quaes deminstrão ptholomeo e albumazar nos lugares citados com os mais autores como tão bem por ser ella de sua natureza subtiliçissima e jucundissima.

Não negamos o que ptholomeo a mais de mil e quatro sentos e sincoenta annos asperamente reprende e nota bem sebastião bispo oconensi na septima regra que como no ouro e metaes finos asi gerados da natureza a cobiça e arte humana misturou a liga de outros de condição menos pura e os simpleses verdadeiros da medicina adulterou com outros artefíciosos de nenhuma valia, asi *muitos* homens ou miseraueis por cobiça de ganharem ou jgnorantes soberbos pera se mostrarem sábios prencipalmente daqueles pérfidos de Arabia misturarão na astrologia a liga de outras artes vans e supersticiosas rresaluandoas com nome de astrologia como são a nigromancia, geomancia, jdromancia, chiromancia a dos sigilos, e outras sacriligas deuinhatrises. com *muita* rresção condenadas da sagrada escritura e dos santos padres.

Porem histo a juizo ainda de mediocramenten sabios não deue prejudicar a sã, católica, e verdadeira astrologia, como não prejudicção ha medicina, as supresticoes vanissimas que nela mesturarão marcelo, treophasto e outros que mal aproua? Cardano da mesma farinha. nem os nomes vituperosos das artes superstissiosas se deuem atribuir à verdadeira e natural astrologia. como nem quando aristãochio chamou as argumentacoes da logica teas de aranha e aos seus ouvintes semelhantes aos que comen ostras e cangrejos que com pouqua sustancoa enchen grandes pratos de conchas, e outras comparações mais rrancosos, he de crer que falaua não da boa e verdadeira logica senão daquella verbosa e sufistica que homens enganadores lhe tinhamo misturado com o qual fazião que sendo a sciencia de sua natureza medida certa como alguns lhe chamarão pera medir trigo e coussa preciosas usauam aqueles mal dela infamandoa com medirem palhas e cascas de bregigoes de suas sufisticarias.

E *primeira* conclusão deste descurso aduirtamos a todo o estudioso astrologo e bom cristão que pera euitar sesmelhantes afrontas de homens malevalos e facilmente vetuperadores deue usar modesta e prudentemente da sua astrologia. E então usara modestamente quando não quiser mostrar de saber se não o que tem perfeitamete alcançado e não attribuindo á sciencia astrológica coisas a que ella na verdade não pode chegar como ao conhecimento de futuras esperituaes, milagrosos, e que dependem do liure aluedrio ou são meramente fortuitos e casuaes porque os que nestes querem ser astrologos são propriamente adeuinhadores e como taes merecem serem castigados.

Nota:

Uzara prudentemente se dipois de ter feita tida a deligença posiuel pera asertar todauia tiuer pera si que pode auer no juizo algum erro por rrezão de alguma causa que deixou de considerar. E esta prudência não será a elle particular porque em todos os juízos das outras sciencias a seu modo he nesecaria porem sem perturbação que lhe cuase mais errar. alem disto se não for presuntoso e desatentado afirmando cousas que contradigão as leis diuinas e humanas a vertude, arrelegrão, aos bons costumes daquelles entre os quaes vive ainda que lhe paresão verdades e aiunto, se não for dado demasiadamente a licao de liuros daquelles arabes antigos jdolatras supersticiosos, e inimigos, ou jgnorantes da nossa santa ffee que escreverão Melhares de sansaborias e pera mais seguranca he nessesario saber que sisto quinto pontifiçe máximo em huam bulla que comesa; do Çeo e da terra, não permite nenhum exercisio nen lição da judiciaria senão daque pertencer a agricultura medecina e nauegação e ainda que fora destes tres sujeitos aja outros de sua natureza não maos nos quaes se posão fazer juizos astronomicos todauia por a inquietação que causão nas almas dos fieis cristãos como quando apontão o termino da vida, ou tempo de casos dezastrados que ande acontecer quer o padre santo que os que isto fizeram encorrão nas mesmas penas e sensuras em que encorrem os que tratão da judiciaria vã e supresticiosa.

Resposta do primeiro argumento.

Ao primeiro argumento se colige a reposta do que esta dito por que os doctores sagrados não condenão a uerdadeira astrologia que he verdadeira e natural sciência senão aqueloutras artes que falsamente tomarão o nome de astrologia ou ainda mais uniuersal o nome da mathematica sendo meras vaidades ou inuensoes do demónio pera enganar.

Resposta ao 2º Argumento.

Ao 2º, Respondo que o modo de querer saber as cousas futuras de que usão os bons e naturaes astrologos nem he soberbo, nem impio. porque sendo o conhecimento de deos de sua natureza tal que no mesmo instante vee certisima e evjdentissimamente todas as cousas passadas, presentes, e futuras; o homen astrologo vaj por sertos rodeos e discursos rrasteiando os efeitos meramente naturaes e futuros dentro na potencia de suas causas, e tudo o que por esta via pode alcançar he tão pouco em rrespeito do conhecimento de deos com se hum grão de area compararmos com toda a maquina do globo da terra ou o cabedal de um hum pobre laurador com as Riquesas infinitas de hum Rei poderosisimo. porem quis deos por sua begninidade dar aos homens sentido e entendimento tal que não somente como fazem os brutos animaes conheção as coussas presentes ou quase presentes mas tão bem algum pouco das futuras e porvemtura que a isto aludio platão quando dise que por iso dera deos olhos ao homen pera

poder com eles ver o Ceo. demodo que asi como o officio dos olhos he verem as coussas presentes e da memoria representar as passadas asi do entendimento he antever ou conjecturar as futuras as quaes de muitas vezes se, discurso astrologico inferiormente Representa ou em sonhos ou de outro modo de elle he ceruido tanto dos que pertencem ao estado desta vida presente como ao da vida futura segundo vemos nos profetas.

E se o astrologo nas que pronostica por sua sciencia adquirida ouuese de sahir infalivelmente verdadeiro iso fora ser *deus* e não homen. de modo que auemos de cuidar que o que dizem os astrólogos não são Oracalos diuinos se não conjecturas de *hum* erudito e sagas engenho presuposta a fraquesa humana e que muitas vezes podem enganarse com se engana o medico na qualidade da doenca bem tomado o pulso e feito muitas diligencias no exterior e interior do enfermo que toca com as maos e tem diante dos olhos quanto mais em tantas treuoas da astrologia quem auera que alguas vezes não entope, e em tantos laberintos não erre.

Nem o nome de astrologia judiciaria ou conjeitararia quer diser sciencia de verdade infaliuel em todos os que a profeisção se não como nas outras sciencias humanas em que os homens podem fazer *algum* erro e este na astrologia não sei que enueja fas com que menos se sofra que en qualquer outra faculdade sendo de muito menos dano pera insultarem logo contra todos os astrologos quando aqueloutro quem quer que fose pronosticando *hum* um dia de sol sahio de chuva. diguo que o seu erro he menos danoso porque o erro; v.g do ignorante theologo pode fazer perder as almas de muitos, o erro do medico perder a vida o do piloto incuto vida e fazenda. e todauia quando estes errão não julgão *nenhum* que se *deuem* tirar do mundo a teologia, nem a medicina, nem a arte de nauegar; porem a astrologia si não sendo o erro do jgnorante astrologo de mais importância que ficar o mesmo tido por tal naquele juizo erroneo que fez em particular.

Document 3: Introductory chapters of *Astrologia* by Sebastião Dias

Astrologia. London, British Library, Egerton Ms 2063, c.1613.

Astrologia.

Primeiro que entremos, e decamos ao particular desta matéria, será conveniente que declaremos qual seja nosso intento nesta obra: e não seja outro que tratar, e mostrar duas astrologias huma verdadeira e mais segura; de que podem usar os sabios e timoratos; outra vam, falsa, e abominavel de que costumão usar os ignorantes sem sciencia, e consciência, sem aver ameaça de censuras, e castigos, que de cousa tam profana, e indigna de todo homem os possa apartar. E como as causas de que os astrólogos costumão tratar sejam humas uniuersais e gerais e outras particulares, e pessoais, e assj humas como outras de diverso modo, sera bem fasermos IV tratados, conforme a ellas, o primeiro dos princípios da astrologia, como naturezas e virtudes das causas naturais, e superiores, planetas e estrellas da maneira que o fez Ptolomeu no seu quadripartito. O 2.º tratado sera da astrologia que pertence ao juízo dos tempos, mudanças do ar, serenidades, tempestades, e chuvas, ventos, e isto em 2 maneiras como mais em seu lugar veremos. O 3.º da astrologia de nascimentos, como inclinações do nascido por virtude, e força das estrelas, doenças, etc. O 4.º das eleições, assi para a medicina, como para navegações, e muito mais para toda a sorte da agricultura. O 4.º seja declarar o que neste primeiro se deve admitir do dito, e o que se deue dexar, aprovando, e confirmando com rezões o bom, e reprovando com as mesmas o mau, e profano

TRATADO 1.º Dos princípios da Astrologia.

O que neste tratado averemos de tratar não será outra cousa que dar huma notícia geral dos princípios da judiciaria ou astrologia, para que vindo a dar do juízo seja fácil a intelligencia de como há de proceder e o que há de obrar. E assi trataremos das divisões do zodíaco, naturezas e qualidades dos signos, planetas, e mais estrellas, dos aspectos, triplicidades, e aspectos assi dos mesmos planetas entre si, como delles para as casas celestes e outras cousas desta sorte, mas primeiro dos planetas por serem de mais importancia e de mais effeitos nesta materia.

Cap. 1.º
Que cousa seia astrologia, e como se distingue da astronomia.

A Astrologia não he outra cousa *que* huma sciencia, a qual por meio de regras, e preceitos fundados em rezam natural e princípios certos e evidentes de astronomia, e juntamente com experiência ensina a julgar e pronosticar (*conjecturalmente*) de effeitos meramente naturais e dependentes das causas superiores e celestes, os quais neste mundo sublunar acontecem. Donde se colhe a differença *que* há entre a astrologia, e astronomia: porque à astronomia pertense tratar especulativamente dos ceos, das estrellas e planetas fundando-se em demonstrações certas de Arithmetica, e Geometria. O sojeito desta sciencia são os corpos celestes que influem nos elementos, e mixtos deste mundo inferior. E as principais partes deste objecto são os planetas, estrellas, e partes do ceo assi mutáveis como immutaveis; das quais só nesta matéria avemos de tratar.

Cap. 2.
Se se pode saber alguma cousa por astrologia.

In the margin: Não há quem negue que pela astrologia que nos hoje chamamos astronomia e o proprio nome se podem saber muitas cousas de futuro naturaes, como eclipses, conuincões, e outros aspectos e mouimentos etc. etc.

Deixando argumentos e cem rezões de envejosos, e inimigos da sabedoria contra a astrologia costumão fazer, somente propore 3 dos que nesta matéria podem fazer mais pella parte negativa: mas primeiro que os vejamos ponhamos a parte verdadeira. E assi dizemos, e rezoluemos com todos os philosophos e astrólogos que mui bem se podem saber naturalmente muitas cousas por meo de astrologia. E a proua pode ser porque assi como a potência de ver (e que se há de entender também dos mais sentidos) se estendeu a toda a cousa visível que he seu objecto, e toda pode ver; assim o entendimento se pode estender ao seu, que he toda a cousa intellectiva natural, porque da maneira que se ha a prova sensitiva com o seu objecto, se ha a intellectiva com o seu. 2.º a proua que pode o mais, e o mais difficultoso, pode o menos dentro de seu objecto, nos vemos que o entendimento pode alcançar, e descobrir a meudeza dos movimentos dos orbes celestes, seos excêntricos, e epyciclos, o que he difficultosíssimo, logo bem se poderão alcançar os effeitos dos mesmos ceos, etc. 3.º o que se concede aos brutos não se deve negar aos homens, elles muitas cousas denuncião e adevinhão de antemão das naturais, logo muito mais o homem.

Vindo a algumas rezões que en contrario se podem trazer, Respondo ao principal, e que nesta materia he mais forte, que quando os astrologos errão, e em seus juizos acertão tam pouco, he muitas vezes por hum de duas rezões, ou porque se metem temerariamente a julgar de cousas de si illicitas, e que se não contêm no objecto desta faculdade, ou também, ainda que as cousas sejam certas, porque lhes falta aos mais a sciencia, e experiencia que nesta primeiro deuem ter; ou também, e o que mais he porque ao levantar da figura e dar juizo das cousas não usão, nem exercitão aquellas regras com a precisão que se requiere, mas somente contentando-se em grosso, e fraquo mais ou menos, tendo todos estes mais o olho no interesse e cobica, que na verdade e cuidado com que semelhantes cousas devem obrar. Outro argumento que se custuma trazer he o das censuras que os Summos Pontifices, os santos, e os sagrados conones tantas vezes contra os astrólogos, e judiciarios tão severamente denuncião, o que argui assas não só ser illicito tudo o que a astrologia ensina, mas não e incerto; Mas respondesse-lhe que tudo isto se há de entender ser não contra os bons astrologos, comedidos no julgar, e peritos no julgar, mas contra os que vam e supersticiosamente falam de cousas que excede a capacidade humana como em seu lugar veremos: e principalmente contra os magos, encantadores, e outros dados a artes diabólicas que com pacto cobra do demónio denunciavão algumas cousas que acontecião, os quais para se autorisarem se animavão d'astrologia, emparando, e encobriendo seos enganos com capa de sciencia e boa doutrina.

Cap. 3.º

Se he licito aleuantar figura e de que cousas pode aleuantar e que cousas não.

[a large segment of crossed out text at the beginning and throughout the chapter, suggesting an original composition from the author]

Aleuantar figura pode ser ou de cousas naturais, e mudança de ar, ou de nascimentos como dicemos e quanto a primeira cousa digo que não he de si mao, nem prohibido julgar e alevantar figura dos efeitos naturais, que dependem dos influxos celestes, da virtude, e aspectos dos planetas e mais astros, nem isto pertense a adevinhacam ou supersticam, mas de si he louvavel, e necessário. Assi o tem S. Thomas, e commumente he de todos. E a rezão total e apriori he porque na verdade estes efeitos não são de si ocultos, mas podem-se mostrar por causas de que dependem, como são os ceos, e as mesmas estrellas, logo não he mao busca-los, e investiga-los por suas causas, nem menos prohibi-lo. Antes do motu proprio 21 do papa Xisto quinto, que comeca, *Coeli & terrae creator Deus*, se colhe, e prova ser cousa licita, como se dá a entender naquellas palavras; *exceptis duntaxat futuris eventibus ex naturalibus causis necessario, uel*

frequenter provenientibus, quae ad diuinationem non pertinent. Onde reprova grandemente e reprehende o uso da astrologia em tudo o que não são effeitos que nace de causas naturais, e necessárias. E que seja louvável, se prova porque não só homens cesudos, prudentes, e timoratos julgão destas cousas, muitos mas ainda, muitos santos o encomendão, e não reprovão, e mui em particular S. Jeronymo numa espistola ad Paulinum entre as artes utilíssimas ao género humano poem não só a astronomia que trata dos mouimentos, quantidades e outras cousas celestes, mas também a astrologia natural, que trata dos effeitos dos mesmos ceos. E que será necessário se deixa bem ver, e em particular o mostraremos noutra parte. Mas lembre-se que ainda que o julgar destes effeitos não seja cousa prohibida e illicita, he porém mui difficultosa de acertar, e suppoem boa philosophia no que a ouver de exercitar bem, e mui boa experiência, posto que muita parte desta temos de muitos antigos peritos, e doutos nesta matéria, principalmente Ptolomeu. E assj não tem ninguem nesta materia que ter dúvida, mas tento e cautela no modo de conjecturar, e muito mais no falar, sem exceder como muitos fazem affirmando tão efficasmente que auera tais tempos e tais, e que sucederão no mundo estas cousas, e aquellas, que parece o têm por certo. Isto quanto a mudanca do ar, e causas naturais: se se pode alevantar figura de nacimentos, ueremos no 3.º tratado.

Document 4: Introduction to *Astrologia judicial* by Simon Fallon (1639)

The text presented is a edition from the known manuscripts. The text variations are almost inexistant and mostly a matter of spelling or choice of abbreviation.

Questão prohaemial

Que cousa seia Astrologia iudiciaria, e se he Licita, necessaria, e proueitoza para a republica.

Muj ordinario e comum he no principio das sciencias fazerem os *Autores* grandes prohaémios, declarando suas grandezasa e excellências, e as subtilidades que consigo trazem afim de com isso espertar nos entendimentos humanos o appetite de saber que segundo Aristoteles todos tem. No principio da Astrologia iudiciaria se bem se considera são ainda mais neçessarios estes incomios, pois que ella não só como as outras sciências corre praça de pouco ualida no mundo mais ainda tem tantos *que* com escritos e liuros a encontrarão, que lhe são bem necessários padrinhos e deffensores. Contudo como a brevidade do estilo usado nas Escolas se não compadeçe com o das Apologias, deixando aparte o muito que se pudera dizer, E se pode uer em muitos *Autores* graues, que nesta materia apararão a pena somente proporej aqui debaxo deste titulo de questão prohaemial o *que* de forsa he necessario saberem aqueles que com animo sincero e curiozidade catholica se applicão a esta nobre sciência uzando *para* isso dos títulos seguintes.

Titulo 1.º

Que cousa seia Astrologia e como se destinge das outras sciências.

A Astrologia judiciaria he huma sciência natural *que* considerando a natureza e jnfluências das strellas e Planetas, E mais corpos celestes ensina a julgar, e prónosticar os Efeitos naturaes que delles dependem. Porque anida que *Deus Nosso Senhor*, quanto a ordem, dispõe a todas as cousas por si mesmo, contudo quanto a execusão governa os corpos inferiores por mão dos superiores, como ensinão comummente os theologos como s. Thomas, Tertio contra os entes cap. 86. Scoto in secundo distinctione 14. quaestio 3.^a.

Daqui se colhe *que* a Astrologia he huma das sciências que *Aristoteles* chama mixtas, quero dizer *parte philosophica*, *parte mathematica*: *Philosophica* em *que* considera por obiecto os corpos celestes com entes moueis; e *mathematica* em *que* regula este mouimento e o considera certo e determinado.

Deriuase esta Palaura | Astrologia | do grego, e quer dizer fala das estrelas, com *que* se averigua o cosmos e destinge esta sciencia da Astronomia; porque a Astronomia espiculatiuamente considera *numero*, ordem e mouimento dos Astros, tirando *por* isso suas *demonstrações* certas e evidentes da geometrica e arismetica; e a Astrologia he como sciencia pratica, que supondo estas spiculações declara os Effeitos que os mesmos Astros causão.

Titulo 2.º **Se a Astrologia he sciência, ou não?**

Pareceu que não a joannes Pichus mirandula em 12 *libros que* compos contra a Astrologia: Item a Alexandro de Angeles em *hum* liuro *introdutorio* desta *materia*: Pereira Lib. 3.º de Magia, Del Rio lib. 4.º. *dispositionum* cap. 3.º *quastão* 1.^a e a outros que estes alegão.

Fundão-se estes *Autores* nas rezões seguintes.

1.^a A sciencia uerdadeira he aquela que do conhecimento das cauzas se colhem os efeitos: a Astrologia não pode fazer isso; logo não he uerdadeira *sciencia*. *Prouase* a menor, porque as causas que considera a Astrologia são as estrellas, Planetas, e mais partes do Ceo, às quais se não pode *perfeitamente* penetrar a natureza assi pella multidão dellas como pelas influências, com que de forsa pella uezinhança *humas* impedem as outras.

2.^a A uerdadeira sciencia fundase em experiencias de largos annos feita e aprovada por uarios *homens*, porque a uida de *hum* só não basta: Esta uniformidade de experiencia se não acha na Astrologia: antes são os Astrologos mui uarios nos pareceres, mui diversos nas suposições, e ainda repugnantes nas experiencias como ueremos adiante.

3.^a A sciencia não se compadece com erros tão notauéis como se achão na Astrologia, em que são as *uezes* taes os juizos, que os pronósticos parecem são mais feitos acaso *que* deriuados de algum principio certo, e a conta de *huma* *ues* que acerta *hum* Astrologo são muitas as que erra.

4.^a Pera o juizo Astrologico ser *uerdadeiro* he necessário grande exaccão no tempo, e não menos no mouimento das estrellas, entrada do sol nos Equinocios, e outras miudezas que à diligencia humana parecem imposiueis.

5.^a Se he sciencia o *que* dis Ptolomeo Lib. 4.º de *judicijs* Cap. 3.º que os nascidos em certo aspeito da Lua *para* o sol no signo de [capricórnio], são Reis; Não aueria tantos nascidos em a tal coniução *que* nunca sonharão Reinar. Acresenta S. Gregorio que se esta Doctrina fora

uerdadeira, os *filhos gemmios* com nascidos no mesmo tempo e com a mesma constituição de Çeo, não poderiam ser tão diversos nas naturezas e condições, como todauia sairão Jacob e Esau.

6.^a As estrellas tem oie a mesma uirtude que tiuerão no estado da inocência; logo como então não podião pronosticar doenças nem mortes etc. Nem agora os poderão pronosticar; Ergo etc.

Contudo a resolução uerdadeira he, *que a Astrologia he perfeita sciência*, e natural assi o tem *Aristoteles Lib. 2.º rerum naturalium*. Gersão Cancelarium Parisiensium na sua Astrologia Astrologica. Ptolomeo no quadripartitum, e sentiloquium, Juntino, Firmico, Seruero, e finalmente a torrente dos Astrologos e philosophos com uarios padres e doctores que aportarei na secção seguinte. Prouase porque a uerdadeira sciência he *aquela* que de algum obiecto natural demonstra uerdadeiras *propriedades*, certas, e evidentes; bem como faz a Astrologia demonstrando, e pronosticando uarios *effeitos* e *propriedades* de diferentes constituições do Çeo.

Declarase e confirmase porque em effeito os corpos celestes influem nos sublunares, como largamente prouão os conimbrisenses 2.º de caelo cap. 3.º questão 1.^a. Nem isso poderá negar quem considerar que o mouimento do sol fas os 4 tempos tão differentes do anno; item *que humas* strellas nascendo causão secura, outras tempestade: os corpos mais facilmente se abalão em taes e taes coniuncções: e ainda no proprio entendimento, e uontade humana, posto que como está defenido em uarios concílios, não pode influir nelles directamente os Astros por serem potencias spirituais, e como taes fora da jurisdição dos corpos, contudo influem endirectamente, a saber dispondo bem ou mal os órgãos da fantasia de que se serue o entendimento e do mesmo modo temperando os humores pera inclinar mais ou menos a uontade, como tudo ensinão os mesmos Conimbrisenses alegados quaestão 8.^a art. 2.º e he doctrina comuã; Donde Sto. Thomas na 1.^a parte quaestão 115 Art. 4.º diz que *muitas* uezes os Astrologos adeuinhão o que os homens ande fazer porque ainda que as uontades são senhoras liures de suas acções, he mui ordinario resestise pouco às inclinações naturaes.

Resta agora soltarmos as Rezões contrarias A 1.^a Digo primeiramente, *que se* quase resta sciencia muj deficultoza, porque depende de muitas miudezas, as quais todauia se podem entender com o uzo e arte, porque como não há cousa uiziuvel que não esteia dentro do obiecto da uista, assi não há cousa intellegiuvel que não cajba na capacidade do entendimento. Acrescento que ainda que *para* maior perfeição de huma sciencia se requira o conhecimento de todas as causas, contudo absolutamente falando basta penetraremse as principaes. Vesse na Medesina, *que* pronóstica a morte sem penetrar todos os quilates dos humores: Vesse na Nautica

aonde o piloto adeuinha a tempestade sem penetrar totalmente o elemento da agoa. Logo do mesmo modo o bom Astrologo poderá cientificamente pronosticar conhecendo a natureza das causas principaes, como são os doze signos do Zodiaco, os Planetas e cazas celestes sem lhes ser necessario penetrar a natureza de cada huma dellas em particular. Juntino, e o cancelario Parisiense alegados soltão este argumento comdizer que he doctrina comuna dos theologos reuelar *Deus* esta siença aos *Primeiros Pays*, donte seueo *commonicando* aos descendentes.

A 2.^a digo *que* se a uariedade de opiniões quer ha entre os Astrologos proua não ser a Astrologia sciencia, Digo que não auerá no mundo siença algua porque em todas ellas há a mesma, ou ainda maior uariedade: uese ainda na sagrada teologia, em que são poucas as conclusões que não tenham *Autores* por huma e oiutra parte antes esta uariedade he necessaria, pera se fundar mais a mesma uariedade e siença.

A 3.^a não he contra a Astrologia, mas contra os Astrologos, ou *para* melhor dizer contra aqueles que sem diuyda siença se dão por taes; mas como a copia de jdiotas não desdourão as outras sciências, assi nem estes fracos astrologos desacreditão a uerdadeira Astrologia.

A 4.^a tem a mesma solução que a 1.^a.

A 5.^a Digo que o aforismo de Ptolomeu se entende somente outras estrellas, por razão de qualquer diversidade nos Horizontes; mas ainda a natureza dos Pays que tambem he considerauei na *figura* como ueremos em seu lugar. A instancia de Jacob e Jsau, se recorre a diferença do tempo que ouue entre o nascer de hum e outro que ainda que tão breve foi causa das diferentes inclinações does jrmãos.

A 6.^a e ultima razão digo com o comum dos theologos, e o mestres das sentenças in 4.^a difin. 48. que o ceo oie não tem as mesmas influências que no estado da inocencia, como nem tão pouco das estrellas a mesma lux. Ainda que tambem se pudera dizer que tendo o Ceo a mesma natureza que então, seruia oie depois do peccado *para* nosso trabalho, bem como dizem os santos que as rozas no mesmo estado da inocência tinham espinhos, e os bichos pesonha, ainda que não pera magoar o homem.

Titulo 3.^o **Se a Astrologia he Liçitia ou não**

Parece *que* a Astrologia não he siença Licita, 1.^o porque por elícita a desterravão os Romanos por uezes da sua Cidade. 2.^o estão contra ella uarias Leis lib. 9.^o no codice tit. 15 de maleficis, & mathematicis, principalmente na lej nemo i6i auruspice consulat, aut mathematiciem sub

para capitis. 3.º Muitos lugares da sagrada scriptura, em que *Deus* a abomina Deutronomini 18 *prohibe Deus* todo o genero de adeuinhar. 4.º Regum cap. 17. castiga os que fizerão o contrario Jsahia 47 zombando de Babilonia dis assjm. Saluent te Auguros caeli, qui contemplanti sidera, et suputa dant menses, tu ex eis anuntiarent uentura tibi. Geremiae 10. à signis caeli no lite metuere, quae timent gentes. E no testamento nouo 4.º ad galatas. Dies obseruatis, menses, tēpora, et annos, timeo ne forte sine causa laborauerint inuobis, deixo outros lugares semelhantes.

4.º prouase ser elícita a Astrologia com texto do direito canonico, capite ex tuo de sortilegiis. Castigou o Papa a hum clerigo que tomando hum Astrolabio quis adeuinhar hum Autor de hum furto. Cap. non licet. 26, quaestio 5.ª cap. Sed ex illud 25. quaestio 2.ª o concílio Bracarense pr.º cap. 9.º ad 10. E o Toledano tambem no Cap. 1.º.

Finalmente Sixto 5.º expedio hum breue contra exerçentes Astrologia judiciaria Artem que começa Coeli et Terrae: E o nosso *Santissimo* Papa Urbano 8.º Outro ainda mais apertado que começa inscutibilis iudiciorum Dei altitudo. A tudo se acrescenta a Authoriidade de muitos sanctos e doutores que alegão por esta parte os *autores* asima sitados.

Por outra parte defendem a esta *sciencia* como liçita e honesta não so *Autores* em muitas partes e Ptolomeo e os mais Astrologos antigos, mas tãobem muitos doctores catholicos de nossos tempos, como Lucas Gaurico Bispo Geophonense na sua Astrologia praedectiua, o mestre seruero, *Francisco* Juntino Doctor Theologo, Luçio Belanção, frei Miguel de petra sancta da ordem dos *Dominicanos*, Cardano, Gersão Cancelario Parisiense, Firmico, Stoflerino, Stadeu, e outros. Entre os padres Antigos tambem se achão grandes incomios da Astrologia. E euzebius sazariense, Origenes, S. Hyronimo. Alberto Magno in suo speculo astronomico; mais claramente que todos *Santo* Thomas 3.º contragentes cap. 86 e na 1.ª parte quaestão 58 art. 5.º e nos oppusculos. S. Boauentura, Scoto, e outros.

Para chamar pois a uerdadeira resolução na materia hase de saber que assi como aserca dos objectos de todas as outras sciências ouue sempre uarios erros, assi os ouue tambem na Astrologia, e o *Primeiro* foi o de alguns que com nome de Astrologia quizerão estender a jurisdição desta sciência a mais do que ella na uerdade se estende, chamando Astrologia a openião dos Stoicos *que* tiuerão *para* si que tudo o que neste mundo se fazia era efeito necessario dos corpos celestes acrescentando assi outras superstições com que leuarão apos sy alguns ignorantes que crerão que pella constituição das estrellas em que hum homem nasce se podem saber as accões da sua uida. E já Ptolomeo, como tambem notou o Bispo obsonense reprendeu este dezaforo, notando que como a ouro fino mistura a cobiça fezes de outros metaes,

e os simpliçes uerdadeiros da medeçina estão a adulterados com artefiços e composições, assi ouuese quem quizesse profanar a uerdadeira Astrologia com a mesturar com Artes uans e supersticiozas, quaes são a necromançia, geomancia, etc.^a.

Quando pois os *Autores* asima reprouão a Astrologia se há de entender que falam da Astrologia uam e supersticioza, e não da uerdadeira e natural siença de que nós auemos de tratar: aos uãos e falsos Astrologos desterrarão os Romanos de sua republica, e aos uerdadeiros tiuerão sempre em grande conta, e com esta distinção ficão soltos todos seus argumentos, porque tão longe estão as leys assi ciuis como Canonicas de encontrar a uerdadeira Astrologia que antes algumas apremião aos que a exercitão, e outras claramente desliguem huma Astrologia da outra como notou Panormitano no cap. ex timore de sortilegiis, e a glosa no cap. Non liçet assima relatado com estas palauras, non reperuatur illa Astrologia quae a corporibus superioribus nescessitatem non imponit.

O Mesmo se responde aos Lugares da sagrada scriptura como Santo Thomas in 2.^o distinctiçãõ 15, questão 2.^a e com frei Bartolomeo plançentino da ordem de S. Domingos inquisidor que foi, em a sua *summa* que intitulou Armilla § Astrologia. E no mesmo sentido falarão os Padres e doctores antigos principalmente contra os hereges precilianistas, o que parece não aduertirão os caluniadores modernos que sem fazerem distinção alguma reprehenderão tão grauemente a Astrologia.

Mas, *que* se dirá ás bulas appostolicas? *Respondo* que tambem se ande entender que prohibem a Astrologia uam e supersticiosa, e não à uerdadeira, como se colhe de seus Theares. A de sexto 5.^o dis assi. Tales imprimi sunt Astrologi Olim mathematici, genitliaci et planetarij uocati, qui uanam falsamque siderum et Astrorum scientiam profitentes, diuinaeque dispositionis ordinationem suo tempore reuelandam preuenire audacissime satagentes etc. — futuros rerum euentus, et quaecumque prospere uel aduersae ab uentura sunt ac actus humanos, ea dinique quae ex libera hominum Volumptate profisiscuntur, Astris sideribus *que* adscribunt etc.^a. Depois quando uem a concluir diz — à postolica authoritate mandamus tu tam contra Astrologos mathematicos, et alios quos cumque dictae iudiciariae Artem.

Donde dá a entender claramente o Papa *que* não he sua mente condenar toda a Astrologia senão somente aquella que uanam falsamque etc.^a. E confirmase porque no mesmo breue diz que ha *muittas* cousas futuras que se podem saber dantemão como efeitos naturaes ibi — futuris euentibus ex naturalibus causis necessario uel frequenter prouenientibus quae ad diuinationem non pertinent dum taxat exceptis. Alem de *que* logo abaixo aprova o uzo da judicaria que

pertence à medicina, nautica, e agricultura ibi praeterquam circa agriculturam, nauigationem, et rem medicam.

O Breue de Nosso Sanctissimo Papa Urbano 8.^o ainda he mais rigoroso, porque alem de confirmar este de sexto 5.^o de nouo ordena por instas causas que se não consultem os Astrologos no que toca à pessoa do summo Pontifçe, nem parente seu no 3.^o grao; nem se estenda a Astrologia a pronosticar do estado da jgreia nem da republica christam, ibi in syper qui de statu republica christianae, uel sedis appostolica, siue de Vita et morte Romani pontificis pro tempore existentis, eiusque ad tertium gradum, inclusiue consanguineorum, mathematicos uel astrologiam judiciariam exercentes ett.^a, com que não condena a Astrologia verdadeira, senão a demazia dos que a estendem fora de seus lemites.

Perguntará alguem como conheceremos qual he a uerdadeira e sam Astrologia e como se destingue daquella má e supersticioza que tanto se abomina. *Respondo* com as palauras do breue — nec uero ad futuros euentus aut fortuitos casus pronocendos (futuris euentibus ex naturalibus causis necessario uel frequenter prouenientibus que ad diuinationem non pertinent, dumtax at exceptis) ulae sunt uera artes aut disciplina, sed falaces et uanae. Donde se infere 1.^o que a Astrologia uerdadeira he somente aquella que ensina a pronosticar os effeitos que ou tem necessária e natural conexão com suas causas, ou pelo menos mui frequente e ordinaria; E em substância uem a ser no joizo dos tempos adeuinhar as calmas, tempestades, sterilidades ett.^a, E no joizo da uida, boa ou má dispozição muitas ou poucas doencas; esta ou aquella inclinação ett.^a.

Inferese mais que não ha Astrologia que possa adeuinhar as acções humanas que pendem do nosso liure aluedrio: Donde os que pellos nascimentos e horoscopos afirmão que o nascido há de matar, ferir, ett.^a. não são uerdadeiros Astrologos, mas uãos e supersticiozos, e como taes dignos de serem seueramente castigados; e muito mais o deuem de ser aquelles que com o titulo de Astrologia uzão de interrogações pera saber de furtos, e outros sucessos, as quais cousas são em todo o direito humano e diuino jlicitas e abominaueis. Tambem se condena por falsa astrologia, a que os Antigos chamaão fado, attribuindo falsamente ás stellas as ordenações da diuina prouidença.

Por remate deste cap. Ponho aqui humas palauras com que acaba seruero a sua judiciaria, In his hoc unum fidelem et catholicum leio rem ad monemus contestantes per iesum christum saluatorem et iudicem nostrum, ne ultra his terminos Astrologiae a nobis positos autoritate sanctorum doctorum procedere alet stendere se audeat iuducando de futuris contingentibus, quia sic ofenderet procul dubio ad lapidem angularem, qui si supere um ceciderit, sententia

judiciale conteret cum, *atque* intra fines uita Astrologia manens, caueat ne sit nimis curiosus auidus*que* iudicandi, et praedicendi futura: nam hoc uitriem, cum in alijs sentijs sit ualde nasciuo, in astrologia est quam pernitosissimum.

Titulo 4.º

Da necessidade, nobreza, e proueito da Astrologia.

Em dous sentidos se entende ser huma siença necessária. 1.º por razão de si mesmo. 2.º *para* o conhecimento de outras sienças. No 1.º sentido não se pode negar ser a Astrologia necessaria *para* o ornato do entendimento; pois ouue Doctores catholicos que disserão que se durara o estado da inocença a única siença natural que os homens exercitarião seria a Astrologia.

Quam necessaria seia no 2.º sentido, se uê decorrendo pellas outras sienças: Hypocrates chama ao medico que não he Astrologo monoculo na medeçina. A nautica e a agricultura bem se ue como se serue da Astrologia, ainda pera a Theologia proua o Cancelarico Parisiense muito que serue a Astrologia e por isso lhe chama nobilem Astrologiae Ancilam.

A nobreza da Astrologia se colhe do seu obiecto que como dissemos são os Astros e corpos superiores, e não menos no grande caso que sempre se fes dos Astrologos, como se ue nos Caesares, Alexandrinus, Ptolomeus, Adrianus, Alfonsus Rex castella, Carlus 5.º, et papa pius 2.º e outros muitos.

Com a nobreza aiunta à Astrologia o proueito. Tales milesium, adeuinando acarestia do azeite, fez nelle tanto cabedal que sahio requisimo. Aristoteles aconselhaua a seu discípulo Alexandro que nada emprendesse sem conselho de hum Astrologo bom, deixo outros exemplos uarios que pudera trazer desta materia.

Document 5: Introduction to *Tratado da Astrologia* by Luís Gonzaga

Tratado da Astrologia. Biblioteca da Ajuda, 46-VIII-22, 1702.

fols. 1r-3r

22 de Janeiro 1702:

J. M. J. J. X. B. P. A. G. K. W. AA. B. P. AA Etc.
Tratado da Astrologia.

Disfarce foj sempre da ignorancia regejtár por inuteis as sciencias, e desprezar por humildes as artes, *que* ou não pode alcançar, ou não soube exercitar, encobrando talvez o pouco *que* com sua vista alcança com dizer *que* ociosidade he gastar tempo, e quebrar os olhos nas obseruacoes do Sol, *quando* elle por suas maculas tanto dezegrada á vista: Mascarando com estas nodoas não tanto ao Sol, e nelle as luzes de todas as sciencias, e artes; *quanto* encubriendo em si a ligitimidade de seos entendimentos e nella as traças, e disfarces de sua ignorancia, em *que* so manifestam não serem Aguias: *porque* jamais entre estas se pos a culpa a objecto, *que* examinam, *para* por seos defeytos ser desprezado, mais si ao sogeyto *que* o não alcança *para* por sua incapacidade ser regejtado.

Desta mascara, me persuado, uzaram, e uzam a inda hoje os *que* a boca cheya chamam a sciencia da Astrologia vam, ridicula, falsa, perniciosa, e tal ha *que* lhe chama peste das republicas, como se fohe mal tam contagioso, a *que* os medicos não pudesem sepultar: gastando tempo em compor volumes, formar argumentos allegar athoridades e descobrir rezoens, pellas quais mostrem não ter a Astrologia fundamento algum nas propozicoens *que* propoem e nas conculzoens, *que* infere; sendo entre estes o mais empenhado o Padre Alexandre de Angelos: ao qual, e nele a todos os mais zoylos da Astrologia so proponho *para* cabal rezam destructiva de todos os seos descursos o seguinte dilema. Ou sabem de *que* trata a verdadeira Astrologia, ou não? Se o não sabem como escrevem contra o *que* ignoram; Subam a gostar a ducura dos uuas: e logo não diram *que* amargam por verdes, e se não podem voar, não se mostrem rapouzas em desdenhar. E se o sabem; torno a lhes preguntar ou se porsuadem em suas apologias, *que* os Astrologos Catholicos tem *para* si, e como tal ensinam *que* as influencias dos planetas nascidas de suas calidades tem tanta força *para* produzirem seos effeytos; *que* hajam os ter, como la dizem de succeder o ou por força, ou por uontade. *Porque* entendem, e ensinam, *que* sam humans causas puramente contingentes, *que* dado por sua virtude conduzam *para* os taes effeytos; podem os ter de jxar de succeder por se impedirem por

outros agentes occultos, ou mal conhecidos pellos mesmos Astrologos; ou *porque* dependem do livre arbítrio, sobre o qual não tem força alguma coactiva influxo algum dos planetas.

Se o *primeiro* para *que* se cançam tanto escrever, e compor *quando* com so dizerem *que* os taes Astrologos sam huns hereges, tem dito tudo; pois pertendem, e ensinam por causas naturais, e tam infalliveis como os influxos planetarios pertendem saber, e alcançar infalivelmente os futuros contingentes, ainda sogejtando o liure arbitrio aos influxos planetarios, cujo poder so reconhece a nossa Santa Fe na Omnipresensa Diuina como a Santa Igreja Romana, e os *Santissimos Padres* o ensinão, e nenhum catholico ainda *que* seja Astrologo o contradiz. E se o *segundo* como logo se molestam tanto em provar o *que* todos confessamos, divirtindo aos curiosos desta sciencia; metendolhe escrapulos mal fundados, e talvez nocivos; *porque muitas vezes* succedera, *que o que* principia por esta curiosidade venha a gostar das mathematicas, e nelas se faça sogeyto grande, o *que* se impede com estes zellos mal ponderados.

Diram, *que* em escreverem contra os Astrologos imitam aos Santos Padres *que* em seos escritos os rephendem, e a Santa Romana Igreja *que* em seos decretos a prohiibe. Respondo *que* se o fizerem do modo *que* os Santos Padres o fazem, e a Sta Igreja o manda, *que* fazem bem; *porque* tambem assim o faco eu, e deuem fazer todos os Catholicos, *que* sabem *que* qual seja a verdadeira Astrologia; mas deuese de advertir, *que* A Astrologia digna de nota, e justamente condenada he a dos Caldeos, Hebreos, Precilianistas, e outras desta vil casta; *porque* taes assim Formavão os seos juizos, a *que* melhor chamamos supersticoes *porque* sem fundamento algum afirmavão o *que* sonhavam, ou fingiam asseverando *que* succederia infalivelmente sem haver poder, *que* o impedisem. E semelhantes dilirios a estes não cabem na verdadeira Astrologia *porque* esta so trata do *que* cazualmente pode succeder, em *quanto* a mudança dos tempos, chuvas, calores, ventos, etc. Para *que* conduzem muito as qualidades, influxos, conjuncoes, opposicoens e mais influencias do Ceo fundado tudo em rezoens phizicas e philosophicas alcançadas ja *muitas vezes* por experiencias.

E se não tem a rezam *porque* os medicos fogem de huns tempos, e esperam per outros para applicarem, ou pararem com alguns medicamentos e *porque* os enfermos especialmente de algum achaque habitual se acham peor mais em huns, *que* em outros dias. E outros respondem, *que* a Lua, e o mesmo do mais planetas he mais nociva, nesta *que* naquella occasião, *que* tal, ou tal conjunção de astros moveu com suas influencias este ou aquelle humor, em *que* influem, e conhecer estas influencias, e ajuizar *segundo* ella's não he sciencia? Estimara saber *que* mais fazem os medicos com as ervas, pos, pedras, agoas se não investigarem suas virtudes /

ordinariamente conhecidas pella experiencia / segundo ellas ajuizarem os effeytos, *que* poderam fazer ou se apliquem so, ou delas acompanham mistos *para* a temperarem, ou augmentarem mais as virtudes dos remédios de cada hum de per si, bem a fim como o fazem os planetas em suas conjuncoens, e aspectos.

E se acaso os astrologos dizem, ou prometem algumas cousas pertencentes aos costumes, genios e inclinacoes, so o fazem *quando* o permitam as conjecturas fundadas na provavel opinião dos philosophos, de *que* os planetas influem nos sublunares mediante a virtude com *que* influem nos 4 elementos de *que* se compõem os humores com *que* os sublunares vivem; e como as inclinações ordinariamente sejam taes quais sam os humores predominantes nos corpos havendo alterações nos humores em rezão dos influxos dos astros, também provavelmente haverá nas inclinacoes. Digo, provavelmente porque afirmar *que* seria consequência infalível haverlla seria erro manifesto, pois quando não houverem outras causas, *que* fizerem falíveis os taes juizos, bastava a livre vontade *para* se tornar falsos; como tornam todas as vezes, *que* vence os impulsos da natureza, inclinação dos génios, e temperamento dos humores; como se experimenta a cada passo nos que v.g. conhecendo serem inclinado a iras por rezão da cólera nelles predominante, de tal hordem se vencem *que* muitas vezes se tornam flejmaticos, como do Mestre Patriarcha Santo Ignacio se escreve.

Diram *que* os Astrologos não so afirmam o que tem ou pode ter alguma conexam com as influencias dos astros; mas tambem o que della esta totalmente izento, como sam mortes casamentos, geracoes, fortunas, desgraças etc. Respondo que *verdade* he *que* assim o fariam os Antigos Caldeos e os mais já referidos, mas nem estes, nem os *que* o imitaram conheceram a *verdade* antes como gente supersticiosa e herética se persuadiam a esses sonhos, dando-lhes credito sem fundamento mais *que* o de terem sucedido algumas couzas das *que* tinham prognosticado não advirtiram, *que* o succederem, foi *muíto* cazualmente e não porque dellas fossem cauza *necessaria* as influencias, mas *que* culpa tem disto os verdadeiros Astrologos, *que* conhecendo ser tudo isto humas falsidade o fingimento so escreverem mostrando os delírios dos antigos *para* delles se fogir. Saber os erros que deram os hereges e as rezões em que os fundavam não he ser herege, mas antes ser sabio se he *que* conheço suas rezoens ridículas e frívolas e seos erros por taes: da mesma sorte conhecer os erros dos Astrologos supersticiosos, e suas falsas, ou fingidas armacoes de cazas celestes; não he ser Astrologo falso; mas antes verdadeiro pois os sabe regeitar, e tratar com somenos separando o *que* he provável, do *que* he manifestamente falso.

Replicando *que* não merece o nome de sciencia a Astrologia, pois ainda nestas cousas, *que* tem algumas conexam com aspectos e influencias dos planetas, raramente aserta em seos juizos. Respondo *que* se ponha esta objecção aos medicos, mas nestes termos *que* como pode ser verdadeira sciencia a medicina? Se neste mundo se da verdadeira sciencia a medicina se os médicos ainda nos medicamentos *que* se aplicam para curar raramente acertam nos juizos que formão das doenças; e a resposta que se der a esta objecção em favor dos médicos; e ha mesma applico em defeza dos Astrologos. De sorte *que* não obstante andaremse todos quixando errou o medico; não conheceo o medico a doença, etc. não he bastante para se ter por falsa a medicina; e basta o Astrologo na folhinha ou prognostico errar na lua nova em *que* promete frio, sucedendo haver calma; para deste errou a folhinha, errou o astrologo se inferir, que a Astrologia não he boa e verdadeira sciencia, mas falsa e vam. E se disserem *que* os princípios da Medicina sam certos, porque se fundam nas virtudes dos medicamentos os que se se applicarem a seu tempo, e a doença para *que* servem curariam, e se não curam he porque o medico, ou o homem assim chamado os não soube aplicar, o mesmo dirá o verdadeiro Astrologo, mostrando serem os princípios da Astrologia certos, no sintido, e nas couzas *que* temos dito / porque se fundam nas virtudes dos planetas, conhecidas, como quase todos os medicamentos, o sam pella experiencia; as quais se se observarem bem, applicandoas a seos logares fariam tambem os seos effeytos, e *que* se os fazem he porque o Astrologo, o homem assim chamado, os não sabe aplicar, calcular, nem observar. Sendo seo erro, e não da Astrologia, como o he do medico, e não da medicina.

Dilatejme mais, do *que* eudezejava neste proemio por 3 principios 1.º para *que* se não julgue ociozidade o que louvável curiosidade nos *que* querem saber o de *que* trata esta sciencia da Astrologia para conhecerem os erros, em *que* cahiram os antigos, a quem compete maos o nome de supresticiosos, *que* de Astrologos, e para os evitarem em sy, adivirtirem nos outros, *que* como ignorantes ainda creem em semelhantes agouros, e fingimentos e juntamente para se aproveitarem, do verdadeyro, *que* entre pos limites da probabilidade com *que* infirmos alguns effeyros futuros, cuja verdadeira certeza, e sciencia reservou dis para sj, e a comunica aos *que*, e quando he servido. 2.º para de algum modo acudir pollos verdadeyros, e catholicos Astrologios, *que* sem distinção andam calumniados nas apologias, *que* contra a Astrologia ou astrologos em que geral se fazem, e tem feyto devemdose fazer separação dos *que* distinguem o bom, e licito do mau, e prohibido, para *que* do licito sajba, e sigua cada hum o *que* quizer, e do mau e prohibido todos, e de tudo julgam. O 3.º para *que* conste o sintido, e o motivo; porque dou ese tratado, sendo o motivo fazer a vontade a quem tem a paciencia de me ouvir. E o sintido

he o mesmo, em *que* se permite escrever, e tratar da Astrologia, *que* he tendo por a baze e referindo como huma historia fingida, ou huma fabula huma mística, tudo o que os Antigos afirmarão de futuros contingentes, *que* sucediriam por virtudes dos Astros, e de seos aspectos como couzas fundadas em pura imaginação; e sonho; e naquelas, em *que* pode haver alguma conexam phjsica como *para* os ventos, chuvas, etc. Ihe não dam mais *probabilidade que* aquella, *que* as rezoens phjsicas lhe concedem, e a Sta. Madre Igreja aprova.

E por esta cauza ponho por *titulo* a este tratado o de Theatro Astrologico; porque asim como tudo, o *que* no teatro, se ve e representa ou he enredo, qíue engana a vista nas apparencias, mostrando o *que* nãí há, ou he ficção, *que* disfarça o estado das pessoas representado o *que* não sam, se bem tudo poderá ser; porque nem sempre implica haja o *que* a apparencia mostra, nem he impossivel venha a ser o *que* a pessoa reprezenta se Deus o determinar; assim tambem neste tratado como em teatro sahiram os planetas, e astros mostrando-se mais do que sam; porque mais do *que* pode; porque athe na corte da luzes tanto *quanto* cada hum, *quanto* cada hum pode: sendo as *qualidades* de suas influencias apparencias de teatro, *que* so captivam as vontades pello *que* tem de curiosas e vistosas, e não pello *que* tem de scientificas e verdadeiras.

Document 6. Final exam question on astrology

Biblioteca da Ajuda, Ms. 46-VIII-23, fols. IV-IX
Conclusões mathematicas e astrológicas, Lisboa 15 Julho 1703
Hieronymo Nunes

ASTROLOGIA.

QVESTAM SEGVNDA.

Se das Mathematicas he a Astrologia a mais curiosa?

He a Astrologia huma sciencia, que fundada em principios certos da Astronomia, & me razoes naturaes, & boa experiencia, considera a natureza dos planetas por ordem aos effeitos naturaes, que não dependem do livro arbitrio; porque em nada do que esta sogeto ao poder Divino, & vontade humana se pode fazer por regras Astrologicas juizos certos, nem ainda affirmar, como taes as inclinações aos taes effeitos, ainda que se possam fazer algumas conjecturas, principalmente por ordem aos tempos, enfermidades, temperamentos, & remedios medicinaes, & tanto, que com razão se afirma não poder hum sogeto ser perito na Medicina, sem que seja sabio na sciencia da Astrologia, & princípios Astronomicos. De aqui nasce a definição, que commumen[t]e se lhe dá, dizendo, ser a *Astrologia huma sciencia de conhecer os effeitos naturaes pellos lugares, & revoluções dos Planetas*: ou com mais claramente o explica Schoto: *Astrologia, he huma sciencia, a qual com razoes, & princípios physicos bem conhecidos, & ajudados de algumas experiencias, alcança a forma, & virtude, que os astros tem para causarem algumas mutaçoens, & inclinaçoens nos elementos, & elementares*. Em duas partes se faz a sua adequada divisam em Astrologia Introductoria, & Astrologia Exercitatoria. Nas operaçoens desta se attende muito, & com pouca razão à distribuição das doze casas celestes, dando a cada huma virtude especial para determinados effeitos; porque totalmente as julgamos por inuteis por ordem aos juizos Astrologicos, com o respeito de ser a primeira, ou a segunda casa, &c. O contrario porém nos parece attendendo-se, como se deve attender, à correspondencia com os lugares do Ceo : donde se infere nam terem força alguma as dignidades concedidas aos Planetas, por estarem precisamente mais na primeira, que na segunda casa &c. Dos pontos mais difficultosos nesta materia he o conhecimento do Planeta senhor do anno: por mais que alguns o pertendão reduzir a termos menos difficultosos, mas por isso menos Astrologicos, porque tirados sem fundamento dos princípios desta sciencia. Em tres classes se dividem os Astrologos na decisão deste ponto. Os primeiros concendem este dominio

ao Planeta, que for senhor Equinocio de Março. Os segundos concedem este dominio ao Planeta, que for senhor do Solsticio de Dezembro. Os terceiros o reconhecem no Planeta, que domina na primeira hora do primeiro dia do anno. Destas opinioens a que tem alguma probabilidade he a primeira, & como tal a admitimos em quanto a lograr o titulo de senhor do anno, mas não só em quanto aos juizos Astrologicos, porque em ordem a estes, rejeitando as opinioens referidas, affirmamos que mais certos se faram dando a cada huma das quadraturas do anno seu diverso senhor, o qual deve ser aquelle Planeta, que lograr de mais dignidades essenciaes na entrada dos Sol em os Signos Cardeaes. Nam he menor a duvida sobre o lugar em que os Planetas recebem mais vigor, & força em suas influencias. Nam obstante ser opinião mais commua, de que a recebem nos signos, em que se acham; nós seguindo o contrario temos aos Planetas por mais fortes em suas casas; o que nam entendemos da cabeça, & cauda do Dragam, porque nenhuma virtude tem para influirem os effeitos, que se lhe attribuem; postoque de algum modo se póde dizer, que conduzem para elles na forma, que daremos ao que curiosamente o perguntar. Por illusórios lemos os prognosticos universaes fundados na operação de huma só figura levantada em huma só Zona, por a tal figura ser inutil para della se tirarem juizos pertencentes a outra Zona; o que apertamos ainda mais resolvendo ser necessario variar de figura, havendo notavel variedade de Meridiano, para que não sejam puros sonhos, os que não passando de humas falliveis conjecturas se vendam por verdades estudiosas. Ultimamente perguntão alguns se na esfera parallela se póde dar uso da Astrologia? O que se nega communmente; mas com tudo lhe não negamos a possibilidade do uso, mas não da mesma sorte, que nas outras Zonas se practica.

Document 7: Judgement on a Comet by Luís Gonzaga

Tratado da Astrologia. Biblioteca da Ajuda, 46-VIII-22, 1702.
fols. 129r-131v

Juizo de hum novo Phenomeno visto sobre o horizonte de Lisboa

Aos 25 de Fevereiro do presente ano de 1702 as 7 horas e meya depois do meyo dia se principiou a ver em o Ceu huma como cinta, ou zona illuminada com os rayos do Sol, a qual nascendo de entre os crepusculos occidentaes se extendia para o leste com declinação ao lestsueste. A este Phenomeno se principiou a dar o nome de cometa; e ainda hoje 8 de Março corre por tal; sem no discurso destes 11 dias de apparição se lhe observer, nem ver principio, a que chamaram cabeça do cometa. Do que se pode infirir não proceder de cometa pollas rezoens seguintes.

Primeira. Nenhum Mathematico nem Philosopho chamou jamais cometa à cauda, ou raios, que do corpo asterifero se deffundem por reflexo, ou por refracção, como cada hum melhor lhe parecer; porque o verdadeiro cometa segundo a sua definição de huma estrella que de si lança alguns rayos a maneyra de coma, ou cauda e chamase estrela não porque seja alguma das do firmament ou alguma das errantes chamadas planetas; com alguns affirmaram; mas porque a materia de que se forma inflamada com os rayos solares tem tanta quanta semelhança com as estrelas e ja por esta causa para tirarem toda a equivocação os que melhor a difinem lhe dam o nome de Roza; pella matéria aleza com os raios do Sol se parecer na cor com esta flor. O que supposrto como o phenomeno observado nem tiver a figura de estrela, nem a semelhança de roza por nenhum dito se lhe pode em propriedade chamar cometa.

Toda a difficuldade está agora em si o dito phenomeno procedia de cometa ou não? O qual podia deixar de apparecer por ficar entre os termos dos crespusculos, e portanto com as luzes do Sol impedido a nossa vista. Respondo que não procedia o dito phenomeno de cometa, e he a 2^a razão deonde haver, o que mostro assim. No primeiro dia da apparição deste phenomeno ou o cometa estava mesmo no grao com o Sol e a este perpendicular; ou estava do Sol afastado inferior, ou superior ao mesmo Corpo Solar nem de outro modo diverso destes podia estar. Sed Sic iso que mostrarei não estar de nenhum dos modos dittos. Logo não se dava nem podem tal cometa.

Provo a menor em quanto a primeira parte, e logo o farei em que a 2^a que o cometa não podia estar em o mesmo grau e perpendicular ao Sol he manifesto; porque no tal caso shiriam

os reflexos solares formando a cauda, ou mais propriamente a coma em circumferencia com a proporção que permittise a materia da rosa, e do cometa circularmente alumado pelos rayos solares como mostra a figura 1.^a em o Sol A, e rosa B. E que assim houvere de succeder; Se mostra; porque no tal caso seria a Rosa ferida pelos rayos Solares directos por todas as partes, que olhavam para o Sol: Logo por todas as partes haviam de sair os rayos refractos, ou reflexos, guardando com os directos aquella proporção em os seus angulos que os Opticos entre elles requerem ou seja pello postulado, ou polla propriedade 1.^a da Optica: sed sic est que o phenomeno observado senão diffundia circularmente para todas as partes na forma da figura 1.^a Logo o cometa não estava no mesmo grau perpendicular ainda que inferior ao Sol.

Porque pode alguém fazer reparo, e formar alguma duvida sobre a coma, ou cauda do cometa ser ou não ser formada dos Rayos reflexos, ou refractos do Sol, para major clareza de juizo, que formo deste phenomeno, independente desta questam mostro mesmo que deixo provado. Nesta forma a cauda do cometa sempre se estende para a parte transversal, e diametralmente oposta como mostra a figura 2.^a sendo o Sol A e o cometa B, ou C | prescindindo neste lugar, e figura se a cauda hade acabar aguda como D ou se larga com E, porque abaxo fallarej neste ponto. | assim o ensinam os melhores Mathematicos. Logo estando o Sol superior, e perpendicular ao cometa como na figura 3.^a havia da cauda de cometa CF cahir sobre a terra D e estando vice-versa o cometa B superior, e perpendicular ao Sol A havia a cauda BE subir directamente para sima. Isto mesmo se pode confirmar com a sombra lunar em os novilunios, e com a sombra terrestre em qualquer hora do dia, e manifestamente alcançada nos plenilúnios em que sucedem eclypse lunares; não sendo logo o phenomeno observado perpendicular, nem ainda directo a terra, ou ao ceo superior do Sol, senão pode dizer com fundamento que o cometa estava em grau, e largar perpendicular, ou superior, ou inferior ao Sol, o que se pertendia demonstrar na primeira parte.

A 2.^a parte diz que o cometa não podia estar afastado centro se lance hum circulo que passe pello centro do cometa em qualquer lugar, em que se quizer considerar, e seja o circulo HK, em cujo ponto correspondente a o polo austral A esteja o cometa E e se ahi não estiver, esteja no ponto F correspondente ao Boral B e se ainda neste pnto se não quizer imaginar ponhase em alguns dos pontos que respejtão ao poente C *verbi gratia* em M, N. Mostro agora que em nenhum destes pontos pode estar. Temos ditto os melhores Mathematicos como a cauda he sempre transversal ao Sol: Logo estando o cometa em E se extenderia a cauda direjta ao Sol e estando em F se lancaria ao norte e estando em M ou N etc. Se extenderia ao poente C *sed sic est*, que o phenomeno observado nem ao norte nem ao sul, nem ao poente se extendia: Logo o

cometa não estava em algum dos pontos assinados. Nem este ponto tem difficuldade sempre[?] que esta so se deyxar ver na seguinte.

Ponhamos primeiro a figura, e seja a 5.^a na qual suponhamos estar o cometa do Sol para a parte do nascente em algum dos pontos D, E, F ou em outro semelhantes nos quais como se não ache nenhum dos inconvenientes assinados athe aqui nos outros lugares; poderá em algum delles estar o cometa; e para todo virmos ao ponto da difficuldade concideremos ao Sol, e cometa se aquelles lugares; em que na verdade estaria se o tal cometa sedese; e seja verbi g. na figura 6.^a em que sirva de horizonte AB de baxo do qual esteja o Sol em C e o cometa em D do qual nascera a cauda, que a nossos olhas se manifestava. O que suposto digo na procedia o tal phenomen, ainda nesta hypothese, de cometa, pello fundamento seguinte.

Aos 25 de Fevereiro em que este phenomen foj a primeira vez observado, e visto nesta Cidade; estava o Sol no 5.^o grao de Pisces com declinação de 9 g. e 42 minutos graos pouco mais ou menos, cuja descensão obliqua na altura desta cidade he de 344 g 48' aos quais juntos os 18 graos que commumente se dam por termos dos crepusculos se segue que viriam estes acabar no segundo grao de Aries ficando todo restante de signo sobre o nosso horizonte a tempo que de todo se extinguia os crepusculos: e como o cometa não podia estar nem superior, nem inferior perpendicularmente ao Sol como mostrei na figura 2.^a e 3.^a nem podia estar afastado do Sol para a parte do poente como mostrei na figura 4 segue-se que devia estar afastado do nascente, o que se sabe porque senão vio; mas para apertar a duvida lhe demos somente de distancia do Sol hum grao porque assim fica mais metido nos crepusculos horizontaes occiduos.

Isto assim suposto como se fosse verdade mostro ser falso. Esse phenomen tinha modo de poente a nascente; porque cadaves mais se vinha chegando para o olho da lebre, aonde athequi não acabou de chegar, *sed sic est* que o modo era bastante para dentro no espácio destes 11 dias de aparição se ter visto, e ainda sahido totalmente dos crepusculos, sinal he que não havia tal cometa: que o moto seja bastante para o ter posto fora do crepusculos se prova com aparidade de todos os cometas athequi observados, entre os quais achava o que curiozamente os ler nos authores, que delles tratam com exacção; que o cometa que menor moto proprio teve dento nas 24 horas do dia astronomico ou fosse em concequencia sogeito a ordem dos signos, ou em antecedência contra a ditta ordem; foy o que apareceo no ar de 1585 cujo moto era de 2 graos e 18' E cometa houve, qual foi o do anno 1471 que tinha de moto 30 graus. Este moto porem não tem lugar no presente phenomeno podetelo o primeiro de 2 graus 18' os quais dentro nos 11 dias, que ha de aparição forem 32 graos e 18' moto mais do que duplo arespejto da luz solar e como tal manifestamdo bastante para dentro em Lisboa sefatar do Sol, e seos

crepusculos demaneira que fosse, e podese ser observado não so no fim dos termos crepusculares de algum dos seis dias, mas ainda totalmente fora delles.

Neste o moto deste phenomeno seria menor, ou ao menos muito menor de 2 graos 18' so pode coligir assim pella experiencia dos cometas passados, e observados por tantos annos, entre os quais se não acha algum de menor moto, que com exacção fosse examinado. Como tambem porque o moto deste phenomen he tal que de hum aoutro dia com so a vista dos olhos se alcança haver differença com aproximação ocularmente perceptivel ao olho da Lebre: e com tanta distancia não alcançaria os olhos esta differença senão fosse grande. Quanto mais que ainda com menor moto dos 2 graos 18' se pode fazer operação, o qual mostre ser bastante o espácio de 11 dias para se poder deixar ver. O que deixo aos curiosos e poderase tambem confirmar este parecer com a doutrina dos Opticos, os quais mostram como todas as vezes que a sombra ou quasisombra lançada de hum corpo opaco por razão de estar opposto aoutro lucido não acaba aguda he certo ser o dito corpo opaco major que o lucido. Da qual doutrina se segue que o cometa seria major que o Sol; pois o phenomen observado mão acabava agudo, mas largo, e sendo o cometa major que o Sol mais fácil ficava a sua aparição ainda entre os crepusculos; pois menor que o Sol he Venus, e com tudo nestes dias a temos visto estando em pouca distancia delle E ainda que este fundamento tenha suas difficuldades com tudo ajudado das proposições Opticas, e das rezoens todas julgo ser bastante para se afirmar, que o phenomen observado nestes dias não porcede de comta, que a nossos olhos ande occulto com as luzes dos crepusculos occiduos.

Sito supposto. Resta saber o que he, ou o que pode ser este phenomen.

Respondo que sam algumas exaltacoens terrestres, e seccas, as quais juntas com outras ténues dos corpos sydereos recebendo em sy alguma luz, ou seja por rayos solares directos, ou por elles reflexos na Atmospha horizontal, reverberam fazendo a cinta, que vemos, a qual propriamente se chama Trave. [Margin:] Ptholome de Astr. judicis Lib. 2 C.6 tex. 53 *quae dicuntur Trabes*. Fromand. Lib. 3. art. 4 *esse trabes, aut stipulas longe infra Lunam ardentes*. Nem he maravilha succeda isto cauzado pellos rayos solares, quando as luzes de Venus bastam para formarem estes fenómenos, de tal sorte que sam tidos por caudas de cometas como refere Ricciolo succedera no seo tempo em Bononia. [Margin:] Ricciolo Lib. 8 C.4 Sch. *Claudius ... ad me cucurrit nuntians videri vesperi cometara ex turri Franciscanorum parrum. Respondi esse venerem vespertinam et ita erat ...* Principiavase haver esta Trave com a auzencia, e diminuição dos crepusculos occidentaes, sahindo de entre elles pello fim da Balea vindo correndo por quase o meyo do Eridano apontando ao olho da Lebre, era larga, e cabaua mais

larga no fim do que o parecia no restante de seo corpo; e não so acabava larga, mas com alguns rayos a maneira de cabellos, tanto que seria bastante para se acaso ahi fosse estivere o corpo do cometa se poder dizer este Barbado, ou Crinito; e se por esta Trave houese de dar nome ao cometa lhe chamara cauda crinita por ser cauda no comprimento e como crina nos reflexos. A primeira vez que lhe tomej a altura polla ultima parte vista o achej em 28 graos 49' a segunda em quase 30 graos não deo largar a luz da Lua, que hia para 4.º crescente, ajudada da luz de Venus tambem vizinha a porder continuar nas observacoens por lhe diminuïrem a luz de maneira que não se pode distinguir com certeza ponto certo, e ultimo. Seo prefeyto comprimento athequi he incógnito pois se lhe não ve o principio; o que aparece tem 46 graos pouco mais ou menos, mas com ou de todo não acabar ou se lhe deixar ver o principio aos 48 graos se lhe dam 782 legoas portuguesas na terra: Fazia seo moto por circulo menor Austral, mas não paralelo. A distancia da terra não era muita porque não chegava a 85 leguas | dando 4 milhas Italianas a cada Legoa | mas tambem não era menos 40 Legoas alguma curvidade lhe observey podia porem proceder de alguma refracção como diz Guiduccio, ou da major distancia entre os olhos, e a parte mais horizontal como segue Tycho, e Cyzato; pois o mais certo he que semelhantes fenomenos, como tambem as caudas dos cometas sam directas sempre e opostas do corpo luminoso, que com seos rayos as forma. [Margin:] Fromand. Lib 3 art 3. *Tycho, e Cyzatus cencerit reueta Caudas omnes rectas esse.*

No que toca a suas influencias, cujos effeitos sam os que a curiosidade em semelhantes occasioens mais procura saber; digo que estes prognosticos senão costumam fazer senão dos cometas tendo respeito a sua figura, cor, lugar, grandeza, e modo; e que com athe o presente não tenhamos cometa; não ha de que formar juïzos, e fazer prognosticos; e ainda que eu julge por muito provavel que semelhantes fenomenos a este senão distingam dos cometas sendo muito accidentalmente; por me parecer que a mesma materia, de que se formam estas Traves he a de que se compõem os cometas; de tal sorte que a formarse, ou a não se formar cometa desta materia so provem de ella estar ou não estar mais densa, e capas de receber maior, ou menor intenção dos rayos solares; de tal sorte que o que ao principio appareceo cometa crinito, ao depois se faz caudado; e que ao principio foi somente trave ao depois mostre ser cauda procedida de alguma cabeça mais alumiada; como muitas vezes tem sucedido; e por este principio ficar ainda lugar para se formarem alguns juïzos, pois a materia que influe nos cometas he a mesma de que se formam estas traves, com tudo sempre he fallar de futuros contingentes, cuja sciencia reservou Deus para si, e para aqueles a quem a quer revelar. Nem os Mathematicos sezudos e que conhecem a sutilidade de semelhantes prognosticos gastam

nisto muito tempo; como diz o Padre DeChales. [Margin:] DeChales, Lib. 8 prop. 27. *Vidimus cometas, post quos nec bella, nec fames, nec pestes, nec alia similia secuta sunt. Contrà saepè haec mala accidunt nullo denuntiante Cometâ. Est ergo error vulgi, que ex omnibus rebus insolitis occasionem timendi arripit.*

Contudo por outra parte he testemunho do grande Damasceno que os cometas ordinariamente serapostos por especial imperio de Deus talvez porque com a lembrança de que em algum tempo se seguiram alguns castigos, ainda que casualmente sucedidos depoes da aparição de algum cometa; com o temor de semelhantes penalidades se entemdem as mais vidas, e se augmentam, e conservem os bons costumes. ([Margin:] D. Damasc. *Cometae Dei imperio certos temporibus coflantur, rarcusque dilabuntur.*) E assim se deve saber, e ter por certo ser o cometa huma cousa natural e contingentemente vista no ceo, e que houve muitos cometas dos quais senão seguiram effeictos nenhuns nem. Bons, nem bons, e que houve outros, depois dos quais vieram muitas felicidades. [Margin:] Fromando Liv.3 C.3 *art unico quidam temen etiam fausti putantur cometa.* Mas antes ordinariamente os que sam infelizes a huns, sam felices para outros, como se ve nos que trazem guerras que não menos sam tristes para os vencidos, que alegres para os vencedores. O que posto no presente caso so refirey, o que julgo lhe compete segundo o que os authores dizem, e a mim me parece se lhe pode aplicar; nao sej se com rezam: preza a Deus que me engane; ponho o seguinte em Latim porque assim o entendem os doutos e evito a occazião de algumas superstições aos menos sábios.

Magnam significant mutationem et in natura sublunari, cuius effectus quam primum sunt prodituri, significat etiam sterilitatem ortam a siccitate: bella, aestus, turbulentias. Regni alicuius rex, aut ex principibus regni aliquis morietur. Externus hostis regiones incursabit, morbus denique non facilis expulsionis. Não refiro as rezoens, porque lhe acho medo mais do que lhe dou este effeytos; porquanto não persoadam com ellas os crédulos ser verosimeis o que lhe sam provas conjecturais; mas dado que sua figura, cor, e mais circunstanciais que o acompanham vem algum sinal destas influencias; tambem ha e grande fundamento para se puder afirmar, não terem efficacia. Em este reyno de Portugal assim por lhe não ser vertical (como requerem ordinariamente os authores) pois so o he.

Como tambem por lhe ficar fora do dominio de seos signos, que so o exercitam em Alexandria, Sevilha, Compostella, Ratisbona, Calabria, Normandia, Germania, Inglaterra, Polonia, França, Napoles, Capua, Florença, Verona, Bergamo, Cracovia, Marselha, e Caragoça, de que também participam Persia, Suecia, Hybernia, Lorena, Mantua, e Parma: e ainda que algum extenda suas influencias a Portugal pello dominio de Piscis, que na producao destes

effeytos se une com Saturno, ao qual se pode atribuir esta trave pelas propriedade que temos dito: Com tudo ou não sera nada o a tam pouco, o que nelle influira, que com brevidade acabaram; como com Ptholomeu se pode conjecturar da brevidade com que se metia no horizonte, e sobretudo se pode esperar da bondade, e piedade de Deus com que nos favorece; dispondo tudo conforme a sua Divina Providência independente de todas as causas segundas.

Figures:⁷⁶⁸

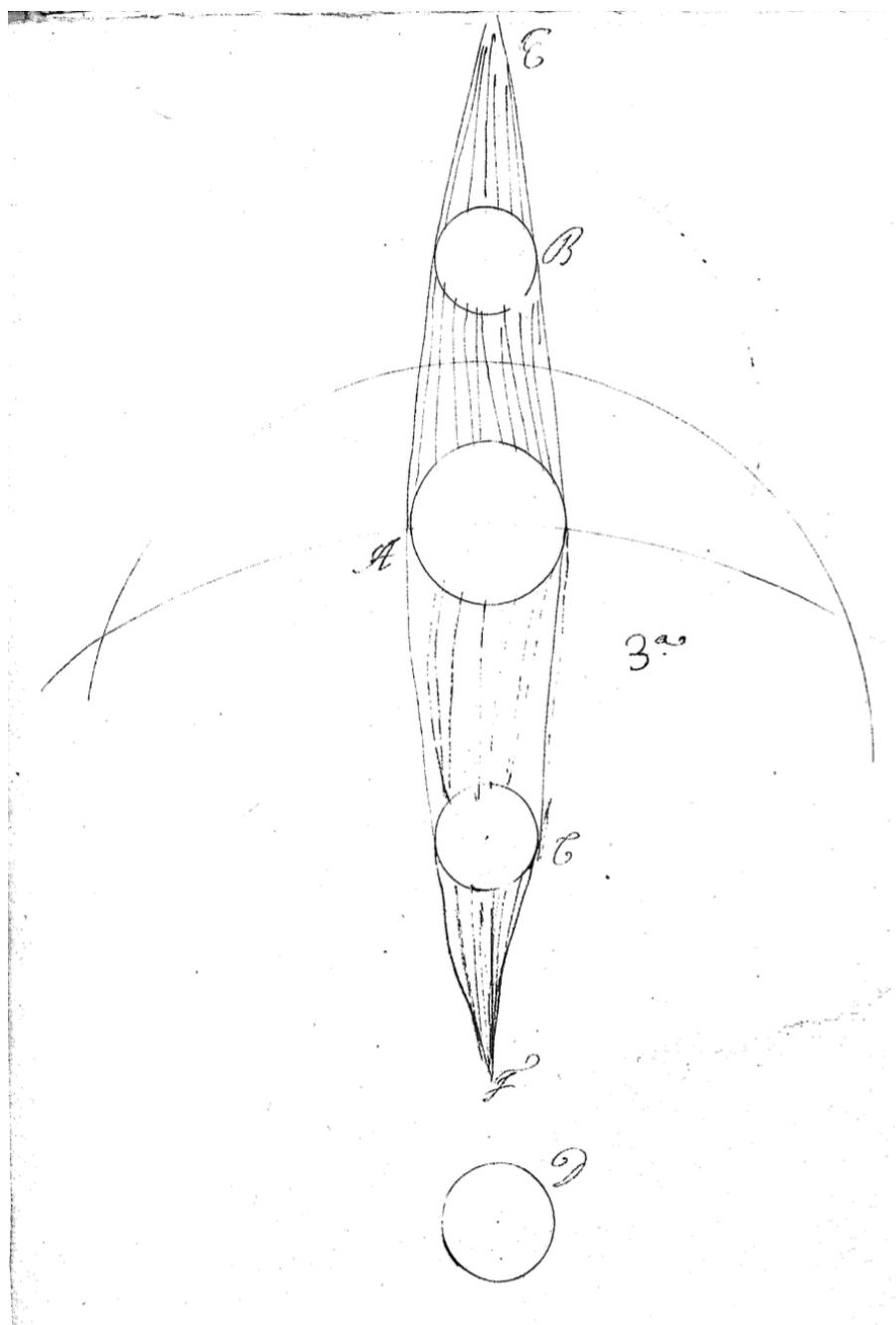


Figure IV.1 – Figure 3 (BA MS 46-VIII-22, fol. 133r)

⁷⁶⁸ Only figures 3, 4 and 5 are listed in the manuscript and what seems to be a incomplete figure 6.

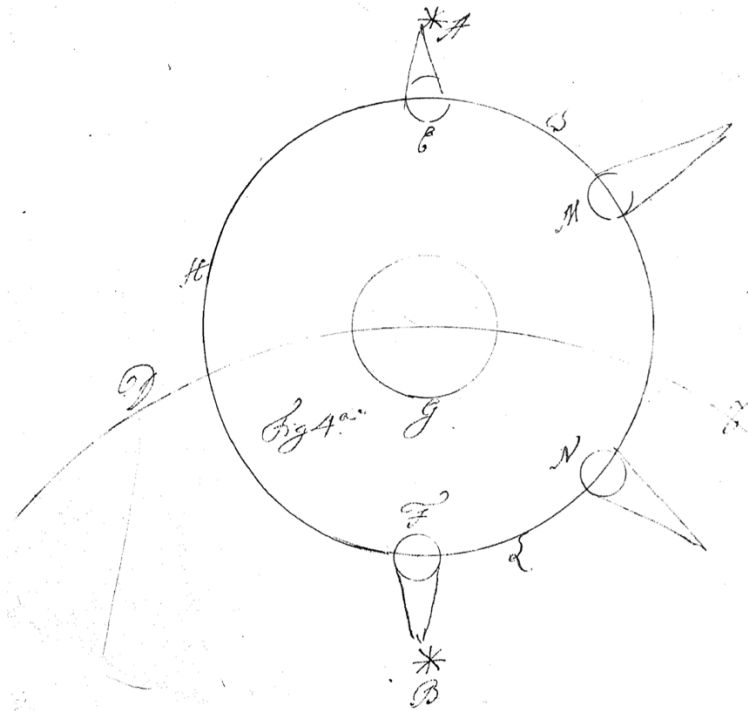


Figure IV.2 – Figure 4 (BA MS 46-VIII-22, fol. 133v)

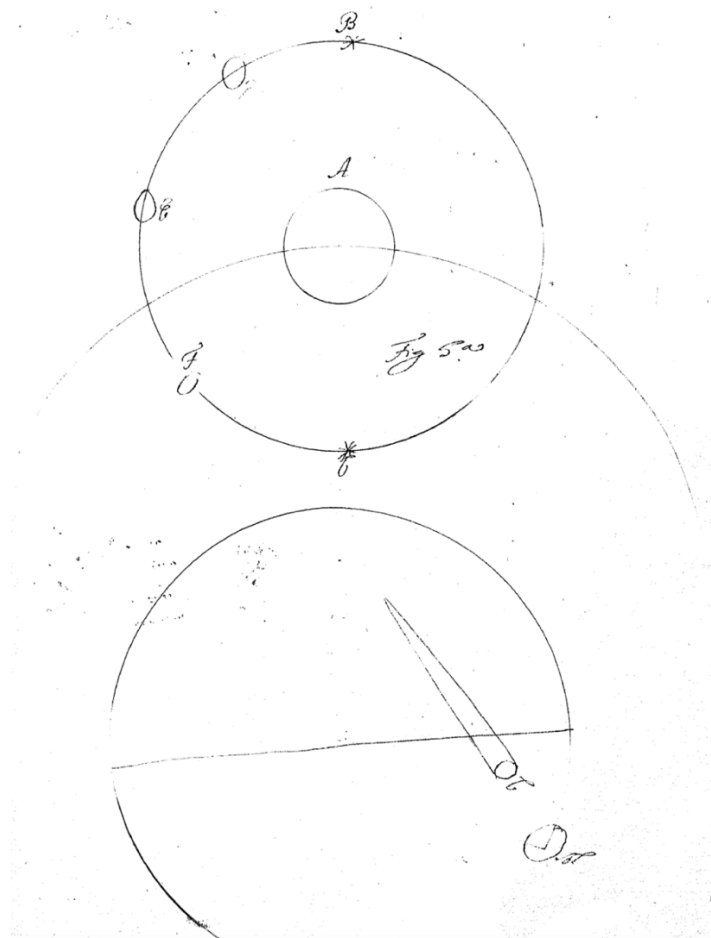


Figure IV.3 – Figure 5 and 6? (BA MS 46-VIII-22, fol. 133r)